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The Use of Twitter in Congressional Campaigns

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The Use of Twitter in Congressional Campaigns

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An abstract of
A dissertation submitted to the Faculty of the
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Abstract

The Use of Twitter in Congressional Campaigns

By Mary (Maggie) Macdonald

Who do politicians speak to when they post on social media sites such as Twitter? The extant literature theorizes that these platforms are a democratizing space, where candidates for Congress provide information directly to the public and the public respond. I evaluate this claim using interviews with congressional candidates and staff, descriptive trends in Twitter follows and connections, as well as the content of tweets. I find no evidence that Twitter enhances the democratic connection between elected officials and their constituents. Rather, Twitter is used by congressional campaigns as a tool to communicate to fellow elites to gain offline benefits.

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I joined the department straight from undergrad and didn't have a strong grasp of what political science research was. My first year was tough, but second year was better, and I have been able to accomplish so much during my time at Emory. This would not have been possible without the support of many who believed in me throughout the last five years.

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Chapter 1 Introduction

As they campaign, congressional candidates work to present their preferred message to the public and political elites[1], in order to further their chances of electoral success. Beyond doing as well as they can in future elections, candidates also seek to represent the interests of, and be accountable to, their constituents. They have multiple communication modes including social media, press releases, direct mailers, and television ads through which they can do this. Every piece of communication acts as an informative and strategic signal to one or more audiences, each of which potentially has something to provide to a campaign to help it achieve its goals.[2] Potential audiences in this framework include voters from within the candidate's district and across the country, as well as political elites such as interest groups, other politicians and campaigns, the media, and activists.

Campaigns have beliefs about what pieces of information they are trying to get to specific people or groups to increase the likelihood of their success. In the ideal setting for candidates, a desired target audience sees and engages with their campaign, perceives the candidate's strengths and beliefs as in line with their own, and supports election efforts. Campaigns have expectations about what information each audience wants and use those to make decisions as they campaign and signal to different audiences.

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[1]I define a *"political elite"* broadly— the term includes other politicians and candidates from all levels of government, party officials at the local and national levels, journalists and media organizations nationally and within the district or state, and interest groups and activists.

[2]I define a *"campaign"* as the group of individuals working together to achieve their goal of electoral success for a candidate. This includes the candidate him- or herself, as well as any staff who support their efforts. Many have noted the importance of congressional staff to the use of social media, as it is often them who write and post (Hemphill, Culotta and Heston 2013, Mergel 2012, Russell 2018). These messages, called *"tweets"* on Twitter, are often strategically written and posted as a part of a larger communications effort by the office of the Congressman.

Social media usage is widespread amongst candidates running for office in Congress, and has increased with time since the early 2000's. Virtually every representative has Facebook and Twitter, but many also have accounts on other sites such as Instagram and YouTube. Of course, this is not limited to candidates running for the House of Representatives; similar trends can also be seen in campaigns for the Senate, presidency, and even state-wide races. These social media platforms are the latest in the long line of technological innovations that congressional campaigns have adopted over time. This activity has grown along with the spike in social media use by American adults, which has risen from 5% in 2005 to over 70% today (*Social Media Fact Sheet* 2019).

Since its launch in October of 2006, Twitter has become an increasingly prominent microblogging site (Bekafigo and McBride 2013, Glassman, Straus and Shogan 2009, Golbeck, Grimes and Rogers 2010), enabling its users to quickly share vast quantities of information to millions of people around the world almost instantaneously. The first members of Congress joined Twitter in early 2007 (Lassen and Brown 2011, Williams and Gulati 2010), by 2009 there was about a 30% adoption rate (Glassman, Straus and Shogan 2009), and today every member is on Twitter. Observationally, congressional campaigns tweet a lot. As shown in Figure 1.1, over the course of the 2018 midterms campaigns for the House of Representatives made over 1.5 million tweets in total and tweeted thousands of times each day.

Why do politicians use Twitter today— who do they target when they post messages, and what are the implications for who they do (or do not) target? The frequency with which candidates tweet suggests that campaigns perceive a benefit from such behavior; they would choose to use their valuable time, staff, resources, and efforts on other activities if they felt they were not potentially gaining something from doing so.
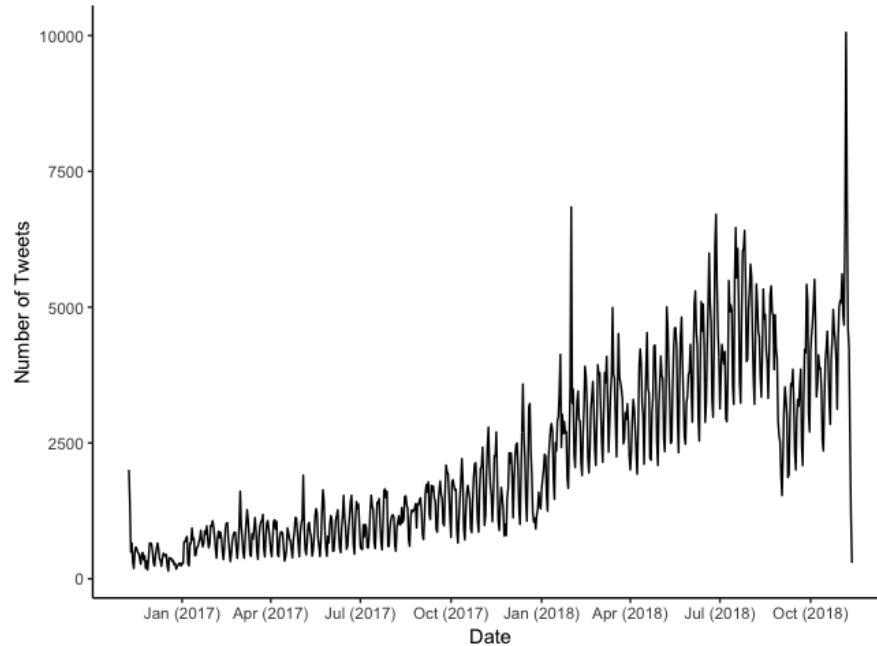
Figure 1.1: Frequency of House candidates' daily tweets throughout the 2018 midterms.

1.1 Twitter as a Direct Form of Communication

Methods of congressional communication are commonly divided into two categories: direct (also called unmediated) and mediated communication (Golbeck, Grimes and Rogers 2010, Lipinski 2004). Direct communication is that where the content, context and timing is better controlled by the members of Congress or their staff (Druckman, Kifer and Parkin 2009). Examples of direct methods of communication include town hall meetings, direct mailings, email, websites, online videos, social media, and personal appearances and speeches. Mediated communication is that where the control is held more by journalists. Some examples of mediated methods of communication include radio, television, and newspapers, where the more traditional media act as gatekeepers to what is covered, when, and how.

These direct or unmediated forms of communication offer control over their message that candidates for congress otherwise lack, and can therefore be appealing. There are several different modes of communication through which they do this, both

off- and online. Of focus here is the recent progression of tools as new technologies were introduced to campaigns. With the introduction of new technologies, the control of the news and information is not held as frequently or strongly by those who traditionally held it, the news media (Ansley and Sellers 2010, Hill and Hughes 1998, Johnson 2011). As a direct communication tool for political campaigns, Twitter shares many of the benefits of similar types of platforms, both offline (including direct mailers, press releases, and television advertisements) and online with other social media sites. It is one of a progression of technological advances that have each changed the state of campaigns in some way, though there are sure to be many more after it.

A common assumption of social media broadly, and Twitter specifically, is that as an unmediated communication platform it offers campaigns a way to communicate directly to voters in their districts. Political scientists have argued that although the posts can be seen by anyone, the information provided in tweets, is likely to be meant for constituents, not other politicians and journalists (Gainous and Wagner 2014, Mergel 2012). This is because Twitter allows them to "communicate directly to a mass audience" (Parmalee and Bichard 2012, p. 11). Others theorized a further step, and there were hopes that this direct link between politicians and their voters would develop into an opportunity for two-way communication (Gainous and Wagner 2014, Rackaway 2014, Tumasjan et al. 2011).

Even with the best of intentions on the part of politicians, it is impossible to respond fully to every constituent on the platform. However, it does not preclude the possibility that politicians use the site to provide information to (even small) groups of voters in their districts. If this is the case, the hope was that it would offer a new and important way for voters to participate in politics and engage with their representatives and candidates, and for politicians to provide information directly to their constituents. The distance between elected officials and the voters who put them

into office would be minimized, and this would increase the ability of representatives to be more responsive and accountable to the individuals they represent.

1.1.1 Evaluating the Conventional Wisdom

The extant literature theorizes that Twitter offers a democratizing space, where political elites provide information directly to the public and the public respond. It is this possibility that I examine in this project. I am guided by several questions about communication choices and strategies on Twitter, including who campaigns believe that they are reaching, who actually sees their tweets, and perhaps most importantly, why these answers matter. In other words, what is the impact (if any) of congressional candidates' tweets? Is Twitter a space where campaigns can communicate directly to their voters, or to someone else?

I argue that the answers to these questions rely on the campaign's anticipated audience. I evaluate this conventional wisdom using several forms of information, including interviews that I conducted with congressional candidates and staff and original Twitter data of behavior by campaigns for the US House of Representatives, as presented in greater detail in later chapters. Campaigns shared with me that they do not perceive their constituents to be their main audience on Twitter, but instead believe that political elites are the most likely to see their tweets. I found evidence supporting their perception by classifying the more than 28 million users who followed 2018 candidates on Twitter by type and location (whether they are a political elite or not, and if they come from the candidate's state)— the vast majority of these users are likely not voters in the district of the candidate that they follow.

However, it is still possible that campaigns craft the content of their tweets for their voters despite their belief that constituents are unlikely to be on Twitter, just in case they see it. To test whether this is the case, I leverage the 2018 redistricting in Pennsylvania as a shock where we would expect campaigns to change their

Twitter behavior to cater to their (suddenly) new constituencies. I find no evidence that Twitter enhances the democratic connection between elected officials and their constituents, in contrast to the prior expectations of the literature.

Instead, I propose an alternative explanation for congressional campaign's extensive use of Twitter— not that it serves as a democratizing force as they represent their constituents, but rather as a tool to communicate to fellow elites, such as interest groups and activists. By making strategic public statements of their actions and preferences, candidates signal allyship to these elites in an effort to gain greater "real-world", offline support from these audiences. I find evidence that they are successful at accomplishing this. In this way, I propose a more complete answer to our scholarly understanding of the purpose of a campaign's use of Twitter— not as a space to reach directly (and sincerely) to their voters, but rather a tool to speak with fellow elites.

Through other communication methods, such as press releases, we know that campaigns communicate to audiences beyond their voters. Candidates can potentially benefit, or at least hope to benefit, from the attention and support of these other groups and individuals. Along with campaign contributions, a campaign may receive an endorsement from an interest group, politician, or news organization. Particularly on social media, attention on the platform from other political elites may increase the spread of a candidate's message beyond their own followers and network. These are all outcomes which are appealing to a campaign and may increase their chances of electoral success.

This project provides one of the first in-depth studies of Twitter audience and effectiveness of campaign tweet behavior. I argue that, even compared to other types of social media, Twitter offers a unique communication tool to political actors and is worthy of study. By expanding the focus on a campaign's use of Twitter from solely a direct link between politicians and voters to include the possibility of other actors and

indirect communication to voters, I de-cloud the incomplete assumptions of previous work and provide evidence that a campaign's digital constituency is wider than we had first believed. This has implications for our understanding of the impact of Twitter on the democratic features of American politics, as well as both the American institutions and behavior literatures.

1.2   Overview of Chapters

In the next chapter, I provide additional background on the theory-building process for this project and extant work on political communications, particularly on social media. I first outline the interviews that I conducted with congressional campaigns in the Fall of 2018 in greater detail; how I sampled them, how I contacted them, the questions I asked, who I spoke to (while maintaining their anonymity) and what they shared with me. Chapter 2 also includes an overview of previous work on political communications and how the introduction of new technologies has (or hasn't) changed how campaigns campaign. It starts with campaign communication offline, such as television advertisements, moves onto the introduction of the Internet and social media, and ends with some of the competing views of whether Twitter would be, is, or could be a platform where candidates and voters can interact, or campaigns could at least communicate directly to their constituents.

In the following chapter, Chapter 3, I first turn to the literature of congressional campaign features and strategies and use these insights to develop a theory of campaign audience on Twitter. The first part of the theory considers targeting voters, and creates and derives expectations based on a framework of how different district characteristics may shape candidate decision-making on Twitter. After that, I outline strategies and considerations that shape if and when campaigns tweet directly instead to political elites, with a focus on interest groups and activists with a narrow

set of interests, by considering the issue from both the perspective of campaigns and the groups themselves. I conclude with brief discussions of other potential audiences, such as the media or voters nationally. It is this theory and expectations that I test in the later chapters.

In Chapter 4, I present the original Twitter and candidate data that I have been collecting since 2017. This chapter explores trends in the over 2 million tweets that campaigns posted on their accounts, the 3 million users that they chose to follow, and the 28 million users who follow them. I outline the data collection process necessary to scrape this information, show trends over time and across campaigns, and classify tweets and Twitter users by type and location. The classification decisions that I made were guided and informed by the theory that I present in Chapter 3. These data, methods, and metrics are additionally used in the remaining chapters to test which audiences campaigns are reaching out to, and whether the campaigns receive any benefits from these behaviors.

Chapter 5 evaluates the claim in the extant literature that Twitter is a democratizing space, where political elites provide information directly to the public. I evaluate this claim with descriptive trends in Twitter mention behavior, as well as testing for changes in the content of congressional tweets by leveraging the February 2018 Pennsylvania redistricting which occurred less than three months before the state's primary election. Despite the fact that many candidates experienced substantial changes in the voter composition of their new districts, their tweet behavior did not change following the release of the new district boundaries. I found no evidence that Twitter enhances the democratic connection between elected officials and their constituents, and suggest that a different audience may be the target instead.

Chapter 6 considers this alternative explanation— that it is political elites, rather than voters in their districts, that campaigns target on Twitter. One such elite to whom they can signal directly is interest groups, whose money and endorsements

are desirable to congressional campaigns. I show descriptively that campaigns and interest groups in three issue areas (agriculture, labor, and LGBTQ issues) do choose to engage on Twitter, as they follow and mention each other frequently. This outcome is not sufficiently enticing to explain campaign behavior; in the second part of the chapter I examine if, when a candidate chooses to link their communications to a topic (such as a farm bill or labor issue), this public signal of their preferences results in a change in the number or amount of campaign contributions that it receives from these groups. In the aggregate for each candidate I find that for these policies, there is a relationship between a candidate's tweets and the contributions his or her campaign receives, though these results disappear for all but labor groups under additional specifications.

In the final chapter, I provide an overview of the insights gained from this work, discuss future extensions, and end with additional implications of the findings. Counter to previous expectations and scholarship, I find no evidence that congressional campaigns used Twitter to communicate directly to their voters— whether from interviews with congressional candidates and their staff, descriptive analysis of campaign tweets and follower networks, or by leveraging the shock of change in district partisanship following the redistricting in Pennsylvania. Instead, I find evidence that Twitter offers campaigns a way to communicate directly to other political elites, such as interest groups and activists, and receive real-world benefits form doing so. Rather than a tool of deliberative democracy, where the distance between elected officials and the voters who put them into office is lessened, Twitter is a space of elite discourse.

Chapter 2 Public Communication in Congressional Campaigns

Twitter is one of a line of technological innovations and communication tools used by congressional campaigns and other political actors, both offline and online. Examples of other methods include press releases, television advertisements, email, websites, and social media like Facebook. Though evidence of the effectiveness of campaign messages using these platforms has varied in previous scholarship, two important underlying assumptions are 1) the importance of audience and how it, at least somewhat, influences strategic communication decision-making by politicians and campaigns and 2) features of a mode of communication shape how it is used. The content of a campaign's message, and even the platform it is communicated on, is shaped by strategic considerations based on who they are communicating to, as they seek electoral benefits. It is commonly assumed that many of these tools are used to communicate directly to voters.

This chapter provides an overview of previous work about political communication, both offline and online. It highlights different features of communication platforms and the introduction of new technologies to political campaigns over time. The focus is on extant work on social media, particularly Twitter, and includes discussion of the data that is available on Twitter and the ways that Twitter is the same and different from other direct forms of communication. I end with a description of the interviews that I conducted with candidates and staff from campaigns for the House of Representatives in the Fall of 2018— how I contacted them and what I learned. Importantly, most of the insights from the interviews contradict the accepted wis-

dom in the existing literature and instead suggest the importance of audiences other than voters in the candidate's districts. In Chapter 3, these insights inform and help to shape my theory of how strategic considerations shape campaign communication decision-making.

2.1 Campaigns Offline

Campaigns have used many different off-line forms of direct communication. For example, they have used press releases, direct mailers, and television advertisements to reach voters and the media for years. These types of communication methods provide several benefits. The campaigns can choose the topic of focus and can (potentially) target certain demographics or areas. Evidence of the effectiveness of their strategies and efforts using these tools have been mixed.

Members of Congress state their priorities, take policy positions, and credit claim in press releases (Grimmer 2013*a*, Grimmer, Westwood and Messing 2014, Yiannakis 1982). Press releases share many similarities with tweets as direct forms of communication which can be made as frequently as the politician's office would like and is able to, and commonly focus on one issue or topic (Grimmer 2010). These topics can included policy and credit-claiming for money gained and spent in a Senators' state (Grimmer 2013*b*). The primary audience for these is not likely to be voters in the representative's district, or at least not directly— for example, they may hope that the content of their press releases will reach their voters through media coverage.

The use of direct mailers increased during the 1980's (Weaver-Lariscy and Tinkham 1996), and are still used today. Mailers can serve several purposes, such as raising money, providing information on issues and candidates, mobilizing (Godwin 1988), and credit claiming (Lipinski 2004). Prior to the introduction of online communication methods, direct mailers offered campaigns a way to personalize their

messages based on known information about voter preferences, and to reach out to individuals in their districts quickly and many times (if desired) (Godwin 1988).

Television advertisements are another form of direct communication; they are often expensive— to air, but also to produce and create. This suggests that campaigns are likely to spend more time and consideration on what is in an ad than with cheaper methods like a social media post. Content that a campaign chooses to focus on in television advertisements varies by political party (Brazeal and Benoit 2008). As a campaign decides on content, it is further influenced by and frames its messages around national or salient political topics (Arbour 2014, Sides 2007). This extends to elections outside of the House; campaigns for Senate and governor frequently responded to each others messages and did so more when the race was competitive (Banda 2013).

There has been little evidence that advertisements targeted to specific groups (e.g. veterans or senior citizens) are effective at mobilizing them (see Sides and Karch 2008) or otherwise effecting election outcomes (Sides 2007). However, evidence has been found that the issues discussed in television advertisements by House candidates are frequently credible signals of what they would pursue once elected. Sulkin found that campaign ads highlighted similar topics that they later introduced in bills or in legislation that they co-sponsored (2009). Similar results were found when considering which images were used in the ads (e.g. women, kids, teachers, police) and subsequent priorities in office (Sulkin and Swigger 2008). The campaigns strategically focused on images and topics that they wanted to highlight to individuals in their district.

2.2 Campaigns Online

Online communication methods on the Internet share the benefits of the offline and unmediated tools, as well as further benefits to members of Congress. It can make

communication fast, make more information available, offer easy access, provides opportunities for connections between people online (Adler, Gent and Overmeyer 1998, Herrnson 2016, Johnson 2011, Rackaway 2014), and is relatively cheap (Hill and Hughes 1998). Technology can also make it easier for politicians to target more specific or narrow groups for more directed negative campaigning (Mark 2009).

Though the focus of this project is Twitter, several online technological innovations in congressional communication preceded social media. For each, Congress has been slow to adopt these new technologies. Members of Congress have adopted new technologies to communicate partially because their constituents were already there, both while campaigning and in office. As Rackaway wrote, "[p]olitical campaigners follow the voters, and if voters have moved online then it is a certainty that the campaigns will follow them" (2014, p. 78).

Previous research has suggested that the introduction of new technologies on methods of congressional communication, particularly in the past twenty years, has changed how Congressmen communicate with their constituents (Glassman, Straus and Shogan 2009, West 2013). Hong and Nadler (2011) noted that many have hailed social media, such as Facebook and Twitter, as innovations on the level of television and radio for their potential as tools of political communication. This shift began with Internet usage by members of Congress (Bimber 1999, Effing, Van Hillegersberg and Huibers 2011). Today, Representatives use staff and resources for their online presence (Hong and Nadler 2011, Lassen and Brown 2011). Though they have changed how many communicate, some scholars argue that though the Internet can be useful and good, it is just one in a line of technological innovations such as phones or fax machines (Hill and Hughes 1998).[1] I agree; though Twitter is the focus here, there have been (and will continue to be novel) technological advances used in campaigns

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[1]They were also writing in 1998 and likely could not have foreseen the impact of technology on life today.

for all levels of government. I acknowledge some of the existing scholarship of them below.

2.2.1 Websites & Email

One of the first online innovations were websites for individual members of Congress (Ansley and Sellers 2010, Druckman, Kifer and Parkin 2009, Gulati and Williams 2007, Herrnson 2016, Lassen and Brown 2011). One common hope and use for these was a place for constituents to find information (Esterling, Lazer and Neblo 2011, Johnson 2004). Importantly, Representatives hoped this would offer them a place to broaden their "home style" (Fenno 1978)— to communicate and provide information about their activities at home in their district and in the capital (Adler, Gent and Overmeyer 1998).

Campaigns did not uniformly and extensively adopt online technologies just because they could. Previous work hints at the importance of intended and perceived audience in campaign communication decision-making. Political calculations shape who uses websites and their many features; when websites are used, it is done to provide information to voters (and potential voters), not to mobilize (Druckman, Kifer and Parkin 2014). In a later study additional differences were found between incumbents and non-incumbents and the type of messages that they chose to put on their websites through surveys of "campaign insiders" (Druckman, Kifer and Parkin 2018). Though they found evidence that all campaigns wanted to reach voters on their websites, the authors suggest that the purpose of a website is to present the campaign's broad messages and goals, while other types of communication such as email or Facebook are used to communicate directly to target constituents. Differences were also found between websites and other forms of communication by congressional campaigns. Sulkin, Moriarty and Hefner found differences between the content of campaign websites and television ads by issue priority (2007).

Email was another early and important technological advance, due to its speed, convenience and low cost (Adler, Gent and Overmeyer 1998, Johnson 2004). However, there are mixed conclusions about its effectiveness for campaigns. Nickerson found no evidence that political emails sent (through partnerships with non-profit organizations) had any effect on voter registration or turnout, and suggested that it is not a cost-effective method of communication (2007).

2.2.2 Social Media

In the years following the introduction of the Internet use by congressional campaigns, other innovations followed soon after— namely, social media. Platforms such as Facebook, Instagram, and YouTube have been adopted by politicians in the United States (e.g. Gainous and Wagner 2014, Gulati and Williams 2007; 2010, Hong and Nadler 2011, Lassen and Brown 2011) and abroad (e.g. Andersen and Medaglia 2009, Jungherr 2016a). Facebook started in 2004, Twitter in 2006, and Instagram in 2010.

The perceptions of the campaigns about who is most likely to be present on a social media platform are in line with, and likely influenced by, surveys of social media use by the American public. In a recent Pew Report, the two most popular social media sites were YouTube and Facebook; these were used by 73% and 69% of adults, respectively (Perrin and Anderson 2019). Instagram was the third most popular platform, with about 37% of adults ever having used it, and Twitter was seventh of the list (following Pinterest, LinkedIn, and Snapchat) with only 22% of adult users. The overall percentage of users in surveys by Pew has generally increased since 2012, though the ranking of most popular social media platforms has not changed substantially during this time.

Reported platform use varies by respondent age; generally, the younger the individual (18–29), the more likely they were to use any of the platforms in the survey. Though 69% of all respondents used Facebook, 79% of those aged 18–29 and 30–

49, 68% of those aged 50–64, and only 46% of those 65 and up reported using the platform. The differences were even starker with Twitter. Compared to the overall reported use of 22%, 38% of those aged 18–29, 26% of those 30–49, 17% of those 50–64, and only 7% of those 65 and older used Twitter (Perrin and Anderson 2019).

Kreiss, Lawrence and McGregor interviewed staff from several 2016 presidential campaigns, and found that the interviewees perceive each platform to offer different potential audiences and "affordances" (features of a platform that shape its use), and therefore require different strategies to be used effectively (2018). Similar findings that politicians discuss different issues on Twitter and Facebook were also found in the German national context prior to 2013 elections there (Stier et al. 2018) and in engagement with local government in Spain (Haro-de Rosario, Sáez-Martín and del Carmen Caba-Pérez 2018). Instagram is another platform which has been increasingly used by politicians around the world. In contrast to Facebook and Twitter, posts on Instagram are image or video based, though they can have captions.

Facebook

Campaigns feel that using tools like Facebook are essential for their electoral goals, not because they are likely to benefit from doing so, but because not doing so may lead to punishment (Magin et al. 2017). Outside of the US context, Larsson compared the two (otherwise similar) cases of Norwegian and Swedish politicians on Facebook to learn more about the permanent campaign online during a time period in 2013 when Norway was about to have an election and Sweden was not and found that, though the Swedish legislature is much larger than Norway's, Norwegian candidates were much more active on the platform (2016). This suggests the importance of a looming election and the belief by politicians that Facebook pages may help their prospects with voters. In other insights from the US presidential campaign staff, they suggested that they do not consider all social media to be similarly "cheap"— for campaigns with comparatively lesser resources, they chose to focus on Facebook

and Twitter rather than Instagram or Snapchat (Kreiss, Lawrence and McGregor 2018). Similarly, YouTube adoption was highest among candidates who had more campaign money or were running in more competitive districts (Gulati and Williams 2010), likely due to the cost of producing high-quality video content.

The hope and expectation is that these platforms, particularly Facebook and Twitter, are used to reach potential supporters in the electorate. Evidence of two-way communication, where political actors and voters interact, is mixed; evidence of mostly one-way communication on Facebook by Austrian politicians was found by Heiss, Schmuck and Matthes, though they note that certain post features (such as humor or a negative tone) increased engagement behavior such as likes, shares, and comments by other users (2019).

Through interviews with political communication directors and Facebook data from the Norwegian 2013 national elections, Kalsnes probed the disconnect between campaign's stated reasons for wanting to use social media, to be more engaged with voters, and the reality that there tends to be minimal interaction. Despite the fact that the staff that he interviewed shared "idealistic intentions to interact with potential voters on Facebook" (Kalsnes 2016, p.8), they rarely interacted with users. This disconnect was also found in a study of German and Austrian political parties prior to their national elections in 2013, where the parties used Facebook to share information but not to interact with or explicitly mobilize voters (Magin et al. 2017). Turning back to the US context, in a content analysis of congressional candidates running in competitive races in 2010, Nielsen, Vaccari and Holloway found that most of what campaigns posted online, such as on their websites or Facebook pages, was ignored by voters (2013). However, evidence was also found that Danish members of Parliament interacted with citizens on Facebook in about a third of their posts made in June of 2014 (Sørensen 2016).

Instagram

Mixed evidence of the effectiveness of politicians' use of Instagram has been found. In a study of Swedish political parties in the last four weeks before their 2014 election, the main parties used the platform infrequently— at most once a day. For those posts that were made, their purpose was to provide information rather than mobilize voters (Filimonov, Russmann and Svensson 2016). Lalancette and Raynauld examined the personal Instagram account of the Canadian Prime Minister Justin Trudeau, and found that his posts, whether personal or political, worked to present Trudeau and his political stances in a positive light (2019). Similarly, in a comparison of the Instagram accounts of Norwegian political parties and their leaders, respectively, the leaders offered more personal appeals and were better at engaging directly with users through likes and comments (Larsson 2019). 2016 US presidential candidates were also the most successful at gaining more signs of online engagement such as likes or shares when they worked to present themselves as the ideal candidate or national leader, such as by using patriotic symbols or other well-known political figures (Muñoz and Towner 2017).

O'Connell suggests that how a member of the US House uses Instagram is an aspect of his or her home style; by carefully choosing which images to post, Representatives work to shape their public image (2018). Different types of posts, such as whether they are personal or professional, where the picture is taken, and who is in it, are all pieces of information that members of Congress and their staff use to strategically present the member in a certain light. He finds that most of their Instagram posts focus on their professional work, and that the proportion of posts taken in the member's district increased by over 7%, but the proportion in Washington D.C. was 9% lower, when he or she was in a competitive re-election (O'Connell 2018). In a survey of Instagram users who followed at least one political leader on the platform, respondents shared that the main reason they followed such accounts

was to get information from those users and to consume news (Parmelee and Roman 2019).

The findings from these analyses of social media suggests that likely audience may vary across platform, as suggested in the interviews that I conducted with congressional campaigns. They also provide mixed evidence for who these audiences are— whether it is voters (from the politicians' perspective), and if voters even see and observe the campaigns. I now turn to the main platform of interest, Twitter. It shares some similarities, but other differences, to Facebook, Instagram, and other forms of direct, unmediated communication.

2.2.3 Twitter

Twitter Basics

The following subsection provides an overview and definitions of several common Twitter features, as well as the data available to be "*scraped*", or collected, from the platform.

A Twitter "*profile*" is a user's page or account. An example of a congressional candidate's profile is shown in Figure 2.1.[2] This is the campaign account of Representative Chrissy Houlahan, who was first elected to the House of Representatives in November 2018 and represents Pennsylvania's 6th district. Each profile is tied to a unique and identifying "*handle*", denoted with an "@"— in this example, @HoulahanForPA. The profile is where a user may choose to provide information about themselves, such as a "*profile picture*", "*location*", and "*description*". Other information, such as when they created the profile (here March 2017), is also shown. On Representative Houlahan's profile, we can see her picture, she states that she is from "Pennsylvania, USA", and self-describes as an "Air Force Veteran, business leader, educator. Daughter, wife, and mother of 2. Representative for #PA06".

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[2]I took this screenshot on July 2, 2020.

Figure 2.1: Representative Chrissy Houlahan's Twitter page.

Profiles also provide other useful pieces of information about a Twitter user. As can be seen in Figure 2.1, as of when I took this screenshot in June 2020, Representative Houlahan has chosen to "*follow*" 332 other Twitter accounts (in other words, she has 332 "*friends*" on the platform) and 20.4 thousand users follow her account. Viewing an account and its content is not limited only to its followers, but following an account increases the likelihood that you will see its posts and also sends a notification to the user that you have chosen to follow them.

Twitter is asymmetric, meaning that following another account does not have to be mutual. This can be particularly useful for political interactions online, where members of Congress do not need to follow their own followers, but can choose to do so. There is substantial variation in the number of Twitter followers of candidates

for Congress; some members only have a few hundred followers, most have several thousand, and a handful have a million or more.

The posts that Twitter users create and consume are called tweets. Tweets today are limited to 280 characters or less; until November 2017 they were limited to 140 characters. Even with the expanded character limit, this is still a relatively small piece of text. Pictures and videos can both be included in a tweet and do not count towards the character limit. Congressional candidates, and Twitter users generally, can also choose to include links to other sources (such as a press release or news article) and these characters are counted. There are several additional features of Twitter, or "*affordances*", which congressional campaigns may choose to use in their tweets.

The first is "*hashtags*" (#), which are used to connect a post to larger conversations online, in an effort to tap into a larger audience and try to increase the likelihood that more people see the tweets. Users can search by hashtag to find online dialogue on current events and topics, and congressional campaigns strategically use hashtags to connect their posts to wider discussions, signal their beliefs, and to better frame their tweets (Conover et al. 2011, Hemphill, Culotta and Heston 2013, Hemphill and Roback 2014). Recent examples from congressional campaigns include "#FarmBill", "#corn", "#dairy", and "#Soybeans" in reference to debate around the House of Representative's Farm Bill in 2018.

Other commonly-used features of Twitter are "*mentions*" and "*replies*". A reply is when the handle of the user the tweet is directed to is the first word of the post. This can magnify the audience of the tweet beyond just the poster and their followers to include followers of the account the reply is directed to. A mention is when another user's Twitter handle is included anywhere else in the tweet and can similarly spread the scope of the message. In both cases, the mentioned user is also notified. Thus, replies are mentions, but mentions are not always replies. An example of a mention

(and a re-tweet) can be seen in Figure 2.2, where Representative Bill Johnson's (OH-6) campaign account is mentioned by the Ohio Republicans' Twitter account.

Figure 2.2: Re-tweet and mention example.

There are many ways to interact with a tweet, whether or not you follow the account that posted it. Though beyond the scope of this project, Twitter users frequently comment on and "*like*" each other's tweets. The tweet in Figure 2.2 was commented on once, liked nine times, and re-tweeted seven times. "*Re-tweeting*" is another way to respond to and share a tweet, either your own or someone else's. You can re-tweet without a comment, as Representative Johnson did in Figure 2.2, or add your own content if the remaining character space allows. When a researcher scrapes Twitter content, such as all of a user's posts, this includes re-tweets and non re-tweets. The raw text of a re-tweet always starts with "RT @UserReTweeted: tweet content...". In this way, re-tweets can be thought of as a type of mention. I will use these terms throughout the rest of this chapter and in later chapters.

Political Communication on Twitter

There have been debates about how unique Twitter is from other forms of direct communication and even other social media platforms. Hemphill, Otterbacher and Shapiro argue that through position-taking online, "candidates are using Twitter to implicitly campaign throughout their tenure" (2013, p. 6). Differences in Twitter use in campaigns have been observed between incumbents and non-incumbents (LaMarre and Suzuki-Lambrecht 2013); it has been suggested that political elites use Twitter to "communicate directly to a mass audience" (Parmalee and Bichard 2012, p. 11), where they hold more control. However, in a meta-analysis of 127 Twitter studies from 26 countries around the world, Jungherr notes that there aren't clear and consistent results about the impact of politicians' use of Twitter (2016*b*).

Several studies have conducted content analyses of tweets, and determined several common uses of Twitter by members of Congress, including providing information and credit claiming. Williams and Gulati noted Twitter's similarities to other forms of congressional communication, arguing that "Twitter is not a game changer" (2010, p. 3). Aspects of Twitter can make its use appealing to members of Congress. The benefits of direct methods of communication, such as control over context, content and timing of the message, are especially true with Twitter (Broersma and Graham 2012, Clary 2012, Gainous and Wagner 2014, Lassen and Brown 2011), as the member of Congress or his/her staff can choose when and what to tweet.

Some aspects of Twitter can make its use appealing to members of Congress. The benefits of direct methods of communication, such as control over context, content and timing of the message, are especially true with Twitter (Broersma and Graham 2012, Clary 2012, Gainous and Wagner 2014, Lassen and Brown 2011), as the member of Congress or his/her staff can choose when and what to tweet. However, others argue it is unique (Gainous and Wagner 2014), as Twitter can carry out the same functions as other forms of communication, but more efficiently. It is seen as a cheap way to

distribute information to a wide audience (Broersma and Graham 2012, Clary 2012, Gainous and Wagner 2014, Russell 2018), unlike other forms of communication, such as direct mailers (Glassman, Straus and Shogan 2009), and is also fast and convenient (Broersma and Graham 2012, Hagner 2014). Some have theorized that Twitter may allow messages to reach more people than they otherwise would have; though Twitter and social media users are not representative of the whole population, there may be a part of it which would otherwise not be receiving messages or engaging in politics (Mergel 2012).

Direct Line of Communication to Voters?

One potential and hoped for benefit of Twitter is that it offers a potential for two-way communication (Gainous and Wagner 2014, Golbeck, Grimes and Rogers 2010, Parmalee and Bichard 2012, Rackaway 2014, Tumasjan et al. 2011). This is due to the ability to make a "reply" or "direct tweet" to a user, but also to like, comment on, and re-tweet posts. In the ideal case for a campaign, potential constituents can tweet a comment or question directly to their member of Congress or candidate, and they can respond. At the very least, candidate's tweet with the expectation that their posts are seen by voters in their district, even if the campaign isn't able to respond back. There have been mixed findings of this phenomenon. Glassman, Straus and Shogan (2009) found that Twitter was mainly one-way at the time of their analysis, with members providing information to the public with minimal replies or any back-and-forth communication, though their analysis was carried out when there were less users, both in and out of Congress. Others argue that Twitter provides a more intimate environment, and thus more personalized method of communication (Johnson 2011).

It is not clear whether this still holds today, with more users— this could either provide more people the option of choosing to communicate with their member of Congress over Twitter (Rackaway 2014), or it could mean that with higher numbers

of followers it is too much for members of Congress and their staff to respond to at such an individual level, even if they wanted to. Stromer-Galley (2014) argues that those who believe the Internet and social media lead to increasing levels of interaction between politicians and their constituents are misguided. Instead, she contends it will only create a facade of this. Parmalee and Bichard (2012) mainly found evidence of one-way communication, where political elites provided information to their followers, but note that citizens want more two-way communication.

Though evidence of a true and common back and forth between Congress and constituents on Twitter has not been fully realized, it is still assumed that Twitter offers a direct line from the candidate to their voters. In this way, it has been argued that Twitter offers campaigns a way to bypass the traditional media gatekeepers and provide information to constituents themselves. What does it mean today when so much more of a candidate's messages are publicly available for anyone to see? What signal does it send if a candidate has a central communication platform but does not engage with an issue? In the past, candidates could communicate privately with heterogeneous groups and potential supporters with less concern that competing messages may be discovered. Though this is still commonplace today, there is an added wrinkle for candidates. With public platforms on social media, where all messages are available for anyone to see (if they choose to search for it), even if a private signal is given, if it is not also posted publicly, does that lessen its legitimacy? If a given campaign tweets frequently, and privately tells a given group or individual that an issue is important to the candidate, but then the campaign does not post a statement about that issue on social media, this may weaken their image in the mind of those individuals.

I argue here that the reason that campaigns still choose to make extensive use of Twitter is because of their hope that certain target audiences will see their public statements and provide support to the campaign. One of the questions that I asked

the campaigns that I interviewed was who they perceive to be present on Twitter—who they think sees their posts. Their answers included political elites such as interest groups and activists, journalists and the media (often local, but sometimes national), other politicians and campaigns in their state and outside of it, and a national audience. In contrast, they believe that voters in their districts are more likely to be present on Facebook or Instagram than Twitter. At the same time, they are unsure if their perceptions of who is most likely to see their tweets are true. Each of these potential audiences offers different benefits to a campaign— from votes by individuals in the district, to media coverage, to campaign contributions from activists and interest groups.

Other modes of communication offer similar benefits as Twitter. For example, press releases can be used to provide information to and seek coverage by media and journalists and television advertisements and Facebook posts can be directed at potential constituents. Similarly, social media platforms are relatively cheap to use, especially when compared to alternatives such as direct mailers or television advertisements. In this way, social media platforms offer a communication tool which is available to a wide range of candidates and campaigns and is not limited to those with significant resources; it is possible that this means that a larger variety of campaigns use the platform and enter the political sphere. Though Twitter shares its ease of use and relative cheapness with other social media platforms such as Facebook, I suggest that Twitter offers a platform where candidates may be able to reach multiple types of audiences, particularly political elites, in a way that other platforms do not allow them to. This is supported by findings from interviews with congressional candidates in 2018, as described below.

2.3 Interviews

As a theory-building exercise, I conducted several in-depth interviews with candidates for the House of Representatives and members of their campaign staff before the 2018 mid-term elections. My goal was to explore how campaigns are incorporating social media and its new features into their communications as they work towards their electoral goals. I received IRB approval from Emory University[3] to contact candidates for Congress through email, phone, and letters and ask them a series of questions, which are included in the Appendix. The questions ranged from topics such as the individuals' role in the campaign to the campaign's overall social media and political communication strategy. The initial contact strategy was to reach out to the campaign via email and provide my name, departmental and university affiliation, information about the study, and work to schedule a half hour interview with a member of the campaign. If I did not receive a response from the campaign within one week then I emailed a second time as a reminder email, and then a third time one week after that if I still did not receive a response. If I did not receive a response after the third email, I called (and left a message if necessary).

As a part of my Twitter data collection process I compiled a list of the 2,800 candidates who ran in 2018. This included candidates who dropped out or withdrew from the race, candidates who did not make it past the primary, 2016 incumbents, and those who made it to the general election that November. I took a random sample of these campaigns and blocked on party and district competitiveness, to cover a range of types of campaigns and the considerations that may shape their communication decision-making, so that the insights I gained would allow me to best generalize my theory to congressional campaigns nationally.

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[3]The main proposal was approved on August 16, 2018 (IRB00106163) and included plans for contacting campaigns through email and phone. I applied for an amendment which was approved on October 3, 2018 (AM1_IRB00106163) that added the ability to send letters to incumbents who I otherwise couldn't successfully reach.

2.3.1 Conducting the Interviews

I interviewed whoever in the campaign both had the most knowledge about its social media efforts and was willing and able to speak with me. There is significant variation among campaigns about who has control and knowledge of social media activity for the campaign, depending on factors such as the campaign's size, staff, and resources, as well as the candidate's individual preferences and comfort with social media. Across campaigns there is a range of which members of the campaign make communication and social media decisions. One campaign may nest these responsibilities with the campaign manager, another with a communications director, and some campaigns even have designated social media directors. Depending on the campaign, I spoke to the campaign manager, communications director, or candidate him or herself. Theoretically, I consider all of these individuals to work together as a team in order to fulfill the candidate's electoral goals— to present the candidate in as positive of a light as possible across communication mediums in order to help her do as well as possible.

Overall, I conducted 10 interviews over the phone. Most were completed in 30 minutes or less, but some of the respondents had more to say. Before we started the interview, I conducted a verbal informed consent process.[4] As a way to minimize potential respondent fears that they would a face a reputational cost by participating in the interview, and to increase the likelihood that they would participate, I did not record the interviews but took extensive notes as we talked.[5]

Of the 10 interviews, 4 were with the candidate him- or herself and 6 were with staffers. Of the 6 staff members, 3 were the campaign manager, 2 were communications directors, and one was a self-described "political strategist" and the candidate's

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[4]The informed consent form which I read to the potential participants was approved as a part of my IRB application. If a participant requested a hard copy I was willing to share it with them via email.

[5]In my notes I used identifiers for each participant which were only meaningful to me and do not include the respondents' name or any other identifying information.

spouse. 6 of the respondents represented Democratic campaigns and the remaining 4 were from Republican campaigns. They came from states across the country, from districts with a range of competitiveness. Though all were non-incumbents, 4 lost in their respective primary and 6 went on to the general.

2.3.2 Insights from the Interviews

I was able to gain several insights from the interviews. Despite the differences between them in political experience, national presence, party, and state, there were many commonalities in what the campaigns shared. They agreed that being present on social media is necessary for campaigns today, and expect this to remain the case in the future. From their perspective, this increased importance started with Barack Obama's 2008 presidential campaign, not with Donald Trump's presidential campaign in 2016.

They all had campaign Facebook pages and all but one had a Twitter account. A few also used other platforms like Instagram, Snapchat, and YouTube. Many of the campaigns believe that they reach different individuals on Twitter than on Facebook; simultaneously they are unsure about whether this is true. One communications director shared that their campaign was always wondering who was paying attention to their efforts, and several asked me when my findings would be published so that they would be able to have a more concrete idea of who their actual audiences are, and how they can more effectively use social media.

A handful of these campaigns were first-time candidates and staff and relatively "low quality"— they did not have large budgets or experience on prior campaigns. Due to this, several of them shared that they feel that campaigns like them particularly benefit from social media use because it is a mass communication tool which is available to campaigns on tight or limited budgets. Some mentioned that there is a tension between campaign professionals who have been in the business for many

years and new campaigns, staff, and candidates. Long-serving consultants, for example, see television advertisements as a "litmus test" of a campaign's potential or quality, and argue that social media is not a core part of a campaign. However, a new generation of first-time and/or non-traditional campaigns think that this is an outdated narrative and with new tools like social media they feel that they are more likely to be successful than they otherwise would have before.

When choosing what to post on Twitter compared to Facebook, there are several considerations that the staff and candidates take into account— primarily based on the demographics of users they perceive to be more likely to be present on each platform. Across the board, the campaigns believe that Twitter users are more likely to be younger activists, individuals outside of their district, and other elites such as journalists, the media, and other activists on specific issues. Due to their beliefs about audience, several campaigns discussed choosing to use their tweets to focus on issues with national resonance and felt more free to be more politically extreme on Twitter than on Facebook. Features (or affordances) of Twitter, like hashtags, makes it easier for a campaign to hop on topics of online discussion and get new people to see its posts. One communications director shared that to their campaign, Twitter is a more immediate platform where they can focus more on up-to-date and hot topics.

In contrast, this same staffer shared that they perceive Facebook to be a week behind. Overall, respondents perceive Facebook to be mostly populated by voters in their district, particularly older individuals. They focus more on district-level or local issues on this platform as they believe those are the issues that are most likely to help the campaign with these users. An affordance of Facebook that the campaigns like is that they are not limited in the number of characters in their posts the way they are on Twitter.

Another common insight was that, for the most part, campaigns consider audiences on Twitter and Facebook to be largely separate, with little overlap. One notable

exception are their most ardent supporters. This small group of "super vols", as one campaign manager called them, are the constituents most involved with the campaign both online and offline. She said that for her campaign, the super vols cleaned the campaign office and baked cookies for staff and volunteers. She believed that this small group of voters recognized the differences in content between social media platforms, but acknowledged that it is all a part of the campaign's larger strategy and didn't complain about it. A different campaign manager perceived most of the voters in her district to be on Facebook, but noted that if they do not post on Facebook for a few days nobody notices, but in contrast if the campaign does not tweet for a few days people will call the office and ask why.

When using social media, there are many benefits which campaigns seek to gain, and which vary by their perspective on who a given platform's most likely audience is. In Facebook posts, which the campaigns believe are most likely to reach voters in the district, they hope to mobilize voters, engage with users, and help people feel like they are a part of the campaign, as well as spread information and increase candidate name recognition, and get and coordinate volunteers and fundraise. In tweets, the campaigns still hope to provide information, get volunteers, and fundraise, but also hope that they can reach political elites such as journalists and the media (definitely locally, sometimes nationally), activists, and engaged party members from across the country.

One important point of discussion which varied by campaign based on features like district characteristics and partisanship and their overall campaign strategy was the type of messages that they chose to post on their Twitter accounts— they described this as either discussing "national" topics or "local" topics. Some candidates mentioned specifically invoking national political policy issues or figures such as Senators Bernie Sanders (VT) or Elizabeth Warren (MA) to retweet and post about as a way to show "flavor" of the candidate and his progressive leanings. Others in more com-

petitive races actively avoiding nationalizing their campaign and social media posts in such a way to avoid their "baggage". This distinction, and when we might most expect to see it, will be explored in more detail in the following chapter and analyzed in Chapter 5 using the case of the 2018 redistricting in the state of Pennsylvania.

Chapter 3 Tweets as Strategic Signals

Twitter is one of a line of technological advances in communication methods which have been adopted by congressional campaigns. Scholars have previously agreed that often the basic information and positions made by members of Congress and their staff does not vary by form of communication; that most members tweeted the same type of information that they provide via other sources (Golbeck, Grimes and Rogers 2010). However, this was not the case for campaigns in 2018, who shared with me how they worked to differentiate the content of their communications across platforms.

Campaigns strategically choose what to post based on who they believe is most likely to see it, and whose support, both online and offline, they wish to gain and maintain. I outline the potential audiences a tweet can be used to target in Figure 3.1—voters or political elites (which can include interest groups and activists, politicians and campaigns, and the media). These are audiences that have been mentioned in previous scholarship in relation to several different methods of political communication, as well as in the interviews that I conducted with congressional campaigns. In the following sections, I will outline reasons through which campaigns can benefit from the support of each of these audiences in turn. Twitter is convenient and cheap, but such public posts can be harmful to the campaign if not strategically written to serve the candidate's overall goal and message. It is not in the campaign's interest to tweet without considering who will see the post and what the campaign wants them to take away from it.

Different categories of campaigns have different (ideal) target audiences and different needs and goals for their social media usage. I argue that who these target audience(s) are, and the choices made to reach them, are informed by several features
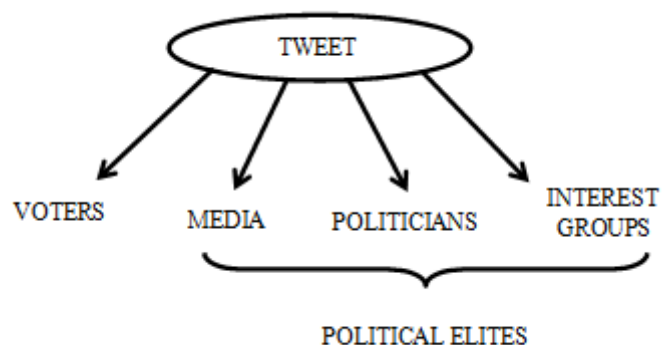
Figure 3.1: Potential audiences for a candidate's Twitter post.

and goals of the campaigns. These goals may change over time, such as in reaction to changes in the electorate, and lead to changes in the content of their posts on Twitter. These are the considerations that I address in this dissertation. I argue that these differences occur because the campaigns find themselves in different types of races, facing and seeking the attention of multiple audiences, and that in order to attract the support of these differing audiences the campaigns shape how they use social media. What topics they choose to tweet about, and the content of these posts, is influenced by who they campaign wants to reach. I don't mean here that a campaign will tweet only to interest groups, or only to voters, etc. Instead, I suggest that we can predict what types of messages may be more or less appealing to a type of audience or that may then be more useful in helping a campaign achieve its political goals by gaining support.

Throughout my interviews with the campaigns of both Democratic and Republican candidates, the campaigns described the choice of distinguishing themselves with a more "national" or "local" focus. This is not to say that a campaign will only make public statements about one of these, as most campaigns post about both at some point throughout a campaign, but that relative to other types of campaigns, they will focus a larger or smaller proportion of their posts on a more national focus, based on strategic choices. Simultaneously, campaigns are aware that anyone can seek out their

posts across any and all platforms, and that audiences other than voters might be present, such as types of political elites in Figure 3.1. I have organized this chapter, and dissertation, around this distinction between voters and political and elites.[1]

This suggests implications for how campaigns fundamentally have to deal with different considerations between their public and private communications in a way that they did not have to before the widespread use of social media and the Internet in campaigns. This tension was one which several campaign managers were conscious of. One described it as a difference between "narrow-casting" and "broad-casting" and a way to "keep candidates honest". They feel that the candidate and his or her campaign must be willing to defend whatever statements they make on social media, or risk the punishment of being seen as inconsistent or of back-tracking.

In the following chapter, I first provide a brief overview of the literature of congressional campaign features and strategies. The next section considers the case for campaigns using Twitter to communicate directly to their voters using a framework for considering how different district characteristics may shape decision-making on Twitter. After that, I outline strategies and considerations that shape if and when campaigns tweet directly to political elites, with a focus on interest groups and activists with a narrow set of interests, by considering the issue from both the perspective of campaigns and the groups themselves. I conclude with brief discussions of other potential audiences, such as the media or voters nationally.

3.1 Strategic Campaign Communications

Politicians frame the messages they post, in order to influence public opinion and policies (Hemphill, Culotta and Heston 2013, Harris 2010). They want to be perceived in a certain way and strategically manipulate their actions to do so and receive support

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[1]In other words— voters and non-voters or elites and non-elites.

(Fenno 1978). Representatives in the House want to be seen as effective and as representing constituent interests in order to be re-elected (Gainous and Wagner 2014, Lipinski 2004, Mayhew 1974), and want to show that they have taken action on issues important to their constituency (Sulkin 2005). Cox and McCubbins write that rational legislators have many goals, including re-election, advancement, and "good" policy (1993).

Candidates for office seek to achieve these goals in an American political system which has become increasingly polarized (Abramowitz and Saunders 2008) and contentious. As a result, Democrats are becoming more liberal and Republicans more conservative. This has resulted in decreasing levels of competition in House races— most districts are safely Democratic or safely Republican. Political campaigns in the United States which are not for the president are often low information environments, and this is particularly true for elections to the House of Representatives (Arbour 2013, Iyengar and Kinder 1987). Due to this environment, congressional campaigns have an incentive to carefully control and craft every small piece of information that audiences can learn about them, though (at least for presidential primaries) evidence that they do this has been mixed (Benoit et al. 2011). Their ability to do this is highest on direct communication platforms, such as television advertisements (Arbour 2014, Kaplan, Park and Ridout 2006) or social media.

In reality, there is a limited audience for any piece of political communication, from any medium, from the average candidate running for Congress, but what is important to consider here is that candidates behave as if their messages matter. As Twitter is so cheap to use, any potential for benefits, such as increased name recognition or campaign contributions, can be enticing. On the other hand, even if a candidate is rarely (if ever) punished for their campaign messaging or behavior, what matters is that the candidates believe that their constituents or other audiences may punish them in this way or remove their support in favor of an opponent (Arnold 1990).

This very real fear influences candidate actions, and is not completely unwarranted; constituents do notice what their representatives are doing in office, and take this into account when assessing them (Sulkin, Testa and Usry 2015).

Members of Congress act strategically, thinking of re-election prospects (Lipinski 2004, Mayhew 1974, Sellers 2010) as well as advancing in the legislature and policy outcomes (Fenno 1978). Cox and McCubbins (1993) write that rational legislators have many goals, including re-election, advancement, and "good" policy. They choose how to campaign based on what they believe voters want to see to try and win votes and support. As soon as Representatives are elected, they begin to look ahead to the next election and work to shape their activities in the House and in their district in ways that benefit these aspirations. Herrnson describes this as the "permanent reelection campaign" (2016, 276), which includes such activities as fundraising, meeting with supporters, and working to (at least appear to) benefit their district while serving in office. Brady and Fiorina (2000) also write of the permanent campaign, particularly for members of the House, who only serve two year terms and must always be thinking of future re-election efforts, and thus want to project a favorable public image. This time frame becomes even tighter with primaries, and also creates an incentive for candidates to be more ideologically extreme than their opponents from within their own party.

Challengers seeking to gain political office (and/or further their own personal political beliefs) also work to provide curated information about themselves to gain and maintain support, such as votes, volunteers, and money. Towards these goals, campaigns of all types seek the support of other groups beyond voters— including media and journalists, interest groups, as well as politicians, party officials, and other campaigns.

Given the broad goals of electoral success, whether seeking to win or just getting more votes for your party in the district than in prior elections, a range of audiences

is required for campaigns to best be able to reach these goals, as each offers its own benefits offline. In the following sections I will consider voters and political elites in turn, with a focus on interest groups as elite type, though I will also briefly discuss the possibilities of other audiences, such as politicians, media, and engaged voters nationally.

3.2 Communicating to Voters?

A potential audience for candidate tweets, and the one which every candidate needs the support of to be elected, are voters in the district. A candidate's tweets are most likely to reach her most engaged constituents; it is these supporters who are most likely to seek out their preferred candidate (or even all candidates running in their state or district) on social media to keep abreast of the campaign. Online platforms are particularly beneficial for campaigns for this purpose, as they offer people a space where they can quickly see if the politician has policies and views which are similar to or different from theirs. Sites like Twitter offer a useful platform to post public statements, but with minimal cost for the campaign.

What do campaigns believe that they can accomplish with their communications, assuming they can reach their voters? It can be virtually impossible to actually persuade people to change their views. From the interviews that I have conducted, candidates and their staff do not believe that they are capable of changing voter opinions through social media (and generally chuckled when I asked them whether this occurred). Instead, they feel that they are working to change voter behavior, and to increase engagement with the campaign. They are more interested here in turnout rather than persuasion; to convince people to vote who otherwise would not have, to raise money (both inside and outside of the district), to get people to volunteer, and, particularly for challengers, to gain name recognition. Social media can also

offer campaigns a way to reach voters who are not being contacted through more "traditional" methods of communication, such as TV ads or direct mailers. Today, this often means younger voters. It also entices them to attract additional media attention and coverage of their posts, to indirectly seek an additional pathway to as wide of an audience as possible.

For candidates who are not an incumbent or have limited campaign funds, these platforms can be an important place in order to take positions and engage in campaign activities. The challengers that I interviewed noted that social media gave them a way to campaign and reach out to voters, even if they did not raise enough money to carry out a wider range of more traditional methods of communication, like television ads. They can use Twitter, and other sites like Facebook, for free to try and reach voters in their district, as well as the other audiences shown in Figure 3.1.

Of course, the campaign's suggested, in line with what we know about the demographic make up fo Twitter users, that voters are not likely to be the main audience for a tweet. However, we lack conclusive evidence that this is the case. Here, I lay out theoretical considerations that would shape campaign communication decision-making and which are influenced both by the literature and my interviews of campaigns. I present them here, and will use this framework to inform tweet classifiers in Chapter 4 and test in Chapter 5. Though I present this within the context of Twitter, these theoretical expectations should hold in any form of public communication directed to voters. Of particular importance for campaign decisions is the time of the election cycle, meaning whether they are looking ahead first to the primary or general election, and the partisanship of the candidate and district.

3.2.1 Two Types of Appeals

The composition of the primary and general electorates shapes candidates' choices on how they present themselves to the public (Fenno 1978). How does this connect to

how congressional candidates use Twitter? Based on their environment and political goals, I offer a strategic choice that they make on the platform between an appeal which galvanizes co-partisans to turn out and support the candidate or one which seeks a broader base of ideological support by persuading moderates. Politicians frame the messages they post, in order to influence public opinion and policies (Harris 2010, Hemphill, Culotta and Heston 2013). In their messaging, campaigns must decide whether to discuss national topics or instead avoid such topics in favor of local and district-level issues. If campaigns are speaking to their voters on Twitter, I argue that the choice between these types of appeals is one which campaigns make.

This is supported by previous findings. Toff and Kim (2013) examined word choice and partisanship in tweets by political elites (politicians, news media, and other organizations), and found evidence of polarized language in the accounts of politicians and party leaders. Grimmer (2013*b*) finds that Senate moderates engaged in policy debates less than more ideological extremists, and that communication levels and content of their press releases varied by district. Though focused on top-two party primary systems, Sparks suggests that when non-co-partisan voters in a candidate's district (i.e. independents and voters of the other party) are included in a campaign's decision calculus, the campaign should moderate the language it uses and public messages it makes (2019). These findings are picking up on the dynamic I suggest here; that there is a difference between focusing on national policy issues and what you can do and have done for your district and constituents. The distinction between these two types of appeals is often analogous to that between a "national" and "local" focus, and it is these labels which were used by the campaigns who I interviewed.

Here, I suggest that the challenge for a campaign is deciding what proportion of its tweets to focus on each topic. It is not that a campaign will choose *only* to tweet about national, more partisan topics or more local, less partisan topics. Instead, for

most campaigns it is a spectrum where over the course of the campaign they will post about both.

National or Local Focus?

When a campaign takes a more national focus, they are seeking to gain and maintain the support of their strongest and most partisan supporters in the district. In our current polarized political environment (Abramowitz 2010) topics which energize partisans are likely to similarly mobilize a specific subset of voters. One effective method for this is to focus most heavily on national political issues and people. In terms of tweets, examples of topics which could be used by a campaign to take this more national approach include Donald Trump, immigration, abortion, the environment, taxes, health care, and Nancy Pelosi. A national message may contain language like "I will support the president and his agenda" and this approach is more likely to fire up potential partisan voters. Candidates who most frequently choose this type of appeal seek to promote themselves as a "good Democrat" or "good Republican", someone who can represent their base's partisan preferences.

Alternatively, choosing to avoid such national topics and instead using a more local or district-level focus on the campaign's activities or the candidate themselves sends a different type of signal. Examples of topics which could be used by a campaign to craft a more local focus include local (district or state) policies and industries, campaign event and logistical information, as well as personal details about the candidate herself. A type of message in this category may say "I will be a voice for [district or state]". In contrast to the first type of appeal, here a campaign seeks to promote the candidate as a "good person" or a "good Representative", rather than a good partisan.

Many scholars note an increasing climate of polarization online (Conover et al. 2011), one that is more negative than would be offline, as seen through fragmenting of the online community and non-overlapping social networks (Stromer-Galley 2014), or

users who interact with and and follow similar people and groups. Similarly, tweets taking a position "had a very partisan tone, placing blame or accusing the other party or president" (Hemphill, Otterbacher and Shapiro 2013, p. 5). This distinction between national and local appeals, and particularly the language used to describe this, is influenced and supported by the campaigns that I interviewed. To illustrate these competing strategies in real life, I present choices made by two Democratic campaigns. First, take the campaign manager for a Democrat running in a district which has historically been safely Republican. Though they tweeted frequently about their district, it was an important part of their communications strategy to also reference and retweet prominent and liberal politicians such as Senators Bernie Sanders and Elizabeth Warren to give their followers a "flavor" of the candidate's beliefs. Referencing national political figures in this way was used as a strategic signal to position the candidate and his beliefs relative to well-known national political figures in the Democratic party. In contrast, the communications director for a Democrat running in a much more competitive, purple district explicitly avoided mentioning (and being mentioned by) politicians outside of their district and state. Their goal was to separate the candidate from the Democratic party and instead frame him as a good man rather than a good partisan. Given that this choice exists for campaigns, when should one type of appeal be better than the other?

3.2.2 When Should Campaigns Choose a National or Local Focus?

There are features of U.S. politics which shape the types of appeals chosen by campaigns when they strategically communicate on Twitter. Campaigns shape their tweets (and all communication content) based on their perceptions about who is going to see the post or message, and what content would be the most persuasive to that group to gain and maintain their support. We should be able to see variation in the

content of campaign posts on social media across campaigns as evidence that they are working to adapt to their circumstances in an effort to maximize their electoral support. One initial difference across campaigns is whether they choose to take a more national or local focus in their posts. As the American political system has become increasingly polarized, and particularly before a primary election when candidates are competing against co-partisans and seeking the votes of the most partisan and ideological voters, the first option is chosen. In primaries, voters no longer have party identification on the ballot as a heuristic to help them choose a candidate, and so other information will be used to inform their decisions.

Particularly in 2018, where there were about 2,800 candidates who ran (including those who withdrew), with an average of 6 candidates per district, ranging from 1 to 26 over the course of the mid-term, the campaigns needed to be able to differentiate themselves and appeal to the people who could actually help them make it to the general and help them meet their political objectives. As a cheap direct form of communication, Twitter has the potential to be a useful platform for campaigns to do these things. Below, I describe three broad types of candidates and campaigns, determined by characteristics of the districts the candidates run in, and the ways in which we can expect them to use Twitter.

Favored Candidates

The first type of candidate is one who is "favored". This is a candidate whose party identification is aligned with his or her district's partisanship, such as a Democrat running in a safely Democratic district. Many general election races are becoming less competitive, meaning that Democratic districts are becoming more safely Democratic, and Republican districts are becoming more safely Republican (Abramowitz, Alexander and Gunning 2006). For candidates in this type of district, they will face most of their serious competition in the primary election (Hirano and Snyder 2014), when they compete against other candidates of the same party for the nomination to

continue on to the general election. Primaries in these safe districts (especially for favored party) often result in high-quality nominees, as there is competition in the race because whoever wins is likely to be elected (Hirano and Snyder 2014).

Turnout in primary elections is often lower than that of general elections (FairVote N.d.), and the voters who are most likely to participate in a primary are often the most highly politically informed (Hirano and Snyder 2014) and partisan (Jacobson 2012). Primary campaigns work to appeal to more of these partisan primary voters than their opponents. To achieve this goal, they have an incentive to provide more partisan appeals. Candidates running in primaries shape their behavior and position-taking away from the median voter in their district in order to be closer to primary voters (Brady, Han and Pope 2007). I suggest that this provides these campaigns with a motivation to focus more of their attention on more national, partisan appeals to seek to mobilize these partisan primary voters.

Competitive Candidates

In contrast, a candidate or campaign in a competitive district is one in which the partisan composition of voters is close to equal for both the Democratic and Republican parties. Here, both the primary and general elections can be consequential. Campaigns in this situation have an additional pressure placed upon them— not only do they have an incentive to appeal to partisan primary voters with ideological appeals, when looking ahead to a contentious general election they also have an incentive to moderate their messages. This is in an effort to appeal to a broader range of voters in the district (such as moderate voters of the other party or independents) rather than only their more extreme co-partisans. In this case, the threat of future elections looms over campaigns. They are aware that they can be punished for appearing to completely re-write themselves between a successful primary and the general election, especially when their posts are public as they are on social media platforms. Thus, in this case these candidates should moderate their messages more than the favorable

candidates described previously by tweeting less about national, partisan topics and instead focusing more of their posts on local topics.

In more competitive general elections, both the Democratic and Republican candidates have a high chance of success, whether the incumbent or the challenger. In a competitive race, the outcome is less certain; all candidates want and need to do all that they can to gain (positive) publicity and attention, and to mobilize their target audience. Candidates are not as likely to converge in the middle as they were in the past and will work to ensure the backing of their core supporters (Abramowitz 2012, Jacobson 2012).

Unfavored Candidates

The final type of candidate is an "unfavored" candidate, where his or her partisanship is not aligned with their district. An example of this is a Republican candidate running in a safely Democratic district. Such a candidate is unlikely to be successful in the general election after winning her party's primary, regardless of any choices that her campaign makes, on social media or otherwise. She is not guaranteed to lose if the race is historically not competitive and she is unfavored, it is just much harder. The possibility that the candidate is able to moderate their Twitter appeals enough to gain a sufficient share of more moderate voters in the district (of either the other party or independents) *as well as* persuade enough of her own co-partisans to support her and win a majority in the district is low. However, there are still candidates on the ballots in those districts where they are virtually guaranteed to not win. This has been especially true in the 2018 mid-term elections.

Instead, this type of candidate may be driven by more personal motives or playing more of a long game by thinking of her own future political goals, because winning is not the only measure of success for one of these congressional campaigns. She may hold a desire to share her ideological and partisan preferences with even a small group of like-minded individuals in the district, even if she is unlikely to be elected, in order

increase the visibility of and support for a party in a district, to further her party's electoral chances in down-ballot races, and help contribute to the future growth of the party in the district and state. Thus, an unfavored candidate will not benefit from avoiding partisan topics, and has little incentive to do so. I expect that candidates in this situation will behave more similarly to favored candidates than competitive candidates, and tweet more about national topics.

3.2.3 Importance of District Competitiveness

I suggest a non-monotonic relationship between district partisanship and campaign communication behavior. When a candidate is running in a district where he or she is favored or unfavored (i.e. not competitive), the campaign has an incentive to focus more on national topics than a candidate running in a competitive district if communicating directly to voters.

The relationship that I am suggesting between district competitiveness and the incentive to focus more or less on partisan messages is not perfectly separated into three distinct categories, but they are still useful ways to think about the different types of campaigns that exist and when they may choose to use the strategies available to them on Twitter. I argue that as the candidate's standing in their district moves away from a "perfectly" competitive district where there is no difference between the number of registered voters of the Democratic and Republican parties, represented by the dashed vertical line in Figure 3.2, they have a weakly greater incentive to focus on national topics in their tweets rather than local ones.

If the district's competitiveness falls along the curve from Figure 3.2 away from the vertical dashed line, the difference between the number of registered voters of the Democratic and Republican parties in the district grows. For campaigns in this situation, they are more likely to focus their Twitter posts on more national messages than those in more competitive districts. As the difference between the registered voters
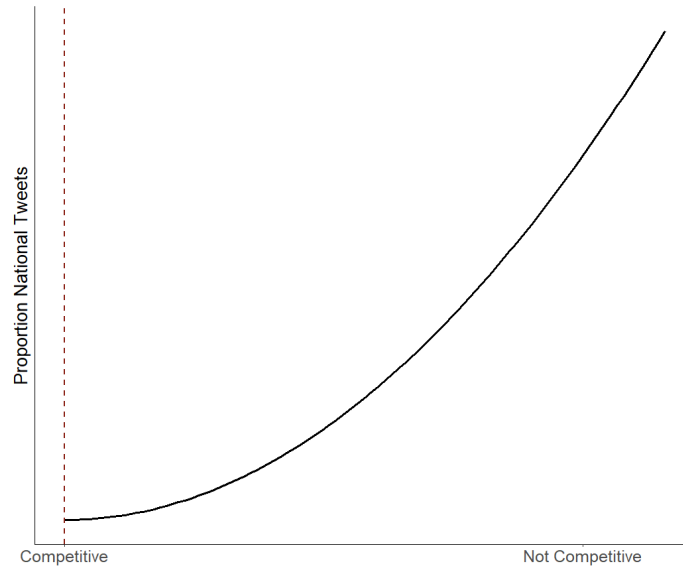
Figure 3.2: Expectations of campaign communication behavior.

of the Republican and Democratic parties in the district grows (as district competitiveness decreases), the proportion of national tweets will increase. Alternately, the proportion of local tweets will be higher when the district is more competitive. This leads to a hypothesis about how district partisanship and competitiveness affects the communication strategies of congressional campaigns on Twitter:

Conventional Wisdom Hypothesis: Campaigns in competitive districts will tweet the least about national topics, in contrast to campaigns in non-competitive districts who will tweet more about national topics.

3.2.4 What About Individuals Outside of the District?

As more campaigns increase the national focus in their posts, the ability to use Twitter in an attempt to gain additional support from outside of the district has become attractive. This was seen in congressional races leading to the 2018 mid-terms, especially as the the national narrative included discussion about which party would have control of the House of Representatives after the elections. There is evidence

of this both in national news outlets (a quick Google search results in hundreds of articles about the topic), and in my interviews with candidates. As an example from an interview, one campaign manager for a Democratic candidate running in a traditionally Republican district mentioned that they specifically sought out support on Twitter from outside the district. They did so because their district is relatively poor and it was a way for them to get the funds (and attention) that they felt they needed to run a successful campaign. As part of this strategy, they sought to post a mixture of national issues and people as well as more district-level posts.

However, turning too much, or too explicitly, to supporters from outside of the district is not always positive for campaigns. For example, potential constituents may feel that their candidate has been "bought out" by special interests or focusing more on politics than them, and no longer represents their values in their district or state. It can also be used as an attack against the candidate by an opponent. Despite these potential drawbacks, this is a possibility which campaigns explicitly seek to exploit, and will likely increase with tribal and politics and the increasing entrance of grassroots campaigns, especially for the Democratic Party. However, campaigns may use their tweets to reach more than voters, and it is that topic that I turn to next.

3.3   Communicating to Political Elites?

An alternative (and complementary) possibility is that campaigns craft their Twitter strategy to appeal directly to a certain audience, but that audience is not voters in their district. This is in line with qualitative evidence from my interviews, where campaigns believe that their tweets are seen by non-voters such as interest groups, journalists, and other campaigns. I now consider whether congressional campaigns use their tweets to attempt to communicate to other political elites, both locally and nationally. If this is the case, then Twitter is not a tool which enhances American

democracy by strengthening the connection between voters and their representatives. Instead, it is a tool of elite political discourse. In this chapter and in Chapter 6, I focus on the possibility of direct communication to political elites (or non-voters). If this is the case, it is done to sincerely provide information to these other elites through the campaign's public communication on Twitter.[2]

The specific type of political elite that I focus on here are interest groups and activists. These are individuals and organizations focused on a narrow set of issues, who would prefer to have a sympathetic representative in the next Congress and may be more likely to seek out and notice a candidate's campaign messages, such as tweets, on political issues than the average voter. Activists may also be more discriminating on the issue areas which they will focus their attention on than media sources. Imagine the scenario where a group is deciding whether or not to support a specific campaign; a social media account offers a place where the group can see what topics were prioritized, and can even look back and see candidate's statements on past issues and events. Here, the tension between public and private messages is very pronounced. If a campaign does not make a public statement about a certain topic on social media, which is so cheap to use, then it may lessen the legitimacy of any private statements made to organized interests or activists, which may be in contradiction to what is said online.

When I interviewed campaign staff and challengers, many mentioned "activists" as one of their main audiences on Twitter. I believe that they use this term to refer to interest groups and/or highly politically engaged (possibly single-issue voter) individuals inside or outside of their district. In the following sections, I consider the two sides of this relationship in more detail and in turn— 1) why would congressional campaigns seek the attention and support of interest groups, and 2) why would inter-

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[2]Another theoretical possibility is that the campaign's Twitter behavior is performative. If this is the case, then they may use Twitter to attempt to reach a larger audience— whether to other political elites or as an indirect pathway to voters (in their district or nationally).

ests watch and see, how they choose which campaigns to support, and what options the groups have to show this support?

3.3.1 Campaign Perspective

What Can Candidates Gain from Interest Groups?

To be successful (whether that means winning or just increasing electoral support), congressional campaigns need the support of multiple potential audiences. Of focus here, organized interests can provide tangible support such as by endorsing a candidate or providing much-needed money to the campaign. In order to gain and maintain this support, campaigns work to communicate what they have done, what they are doing, and what they will do for these audiences in the future. This can include taking policy stances and actions or activities in their district. Campaigns have multiple venues through which they can publicly provide this information; most recently, they make extensive use of social media platforms such as Twitter.

When candidates for Congress publicly state their preferences on the policy issues most relevant to such interests groups and activists, do their campaigns receive corresponding support? I suggest here that Twitter is a venue where the groups most interested in an issue area will seek to observe (or notably not observe) when and what congressional candidates and their campaigns post about the topic. These groups can reward a candidate for his or her preferences or behavior, such as by contributing money to their campaign or endorsing their candidacy, and can also punish a candidate by not offering support or by instead supporting the candidate's opponent(s). For such received benefits to be a driver of campaign activity on Twitter in a way that justifies the frequency with which they use the platform, the benefits received need to be greater than what previous literature has found they gain from other sources— whether in magnitude or in the range of candidates for office that this possibility extends to.

Incumbents & Challengers

I expect that all types of candidates have an incentive to engage in this behavior to gain the support of organized interests (even if they vary in their ability to achieve it), though for different reasons. One such difference across campaigns that may shape how or why they would communicate to activists on Twitter is their incumbency status, mainly due to the likelihood of additional previous interactions and actions to observe from incumbents, as well as greater name recognition. Their past vote history and public statements on relevant issues, as well as committee membership, can influence what interest groups perceive their priorities and beliefs to be. These candidates have a greater incentive to reinforce whatever previous actions they have (not) taken on specific issues areas rather than to introduce new information. Are those already in most relevant committees (where previous literature (see Grier and Munger 1991, Hall and Wayman 1990) suggests interest groups will be most heavily involved because that is where much policy influence is) tweeting more, to reinforce and remind viewers of their behavior on the committee, or is it a space where members of Congress not on the committee can still attempt to make their voice be heard? In other words, does Twitter offer representatives a way to signal that they still share the preferences of groups and are still allies of groups of whatever side they want to signal to?

In contrast, a non-incumbent is more likely to be an unknown quantity than incumbents by interest groups. I suggest that social media platforms like Twitter offers those candidates who lack traditional methods of information provision or influence space to signal how they would behave if elected and what their preferences are on certain issues. Challengers face many of the same goals as incumbents when running for Congress, but with the added challenge of (likely) lacking name recognition. If this is the case, then their Twitter behavior is more likely to lead to different outcomes for them, as interest groups respond to their public statements. Rather than reinforcing

existing power structures, through Twitter non-incumbents can make their own statements and attempt to introduce new information about themselves and their beliefs into the political space. Herndon (1982) found that business and labor groups that he interviewed used party identification of candidate as a proxy when they didn't have an incumbent's record to go on. It is possible that Twitters offer a more informative signal than party identification for these types of candidates.

Tweets as Signals?

Congressional candidates desire (re)election (Fenno 1978, Mayhew 1974), and will make choices and take actions towards this end. This is similar to the intuition of Arnold (1990) about roll call votes in Congress— representatives make a series of dichotomous choices which they make based on which will most increase their reelection chances, and behave accordingly. To accomplish this goal, they must signal their preferences to gain contributions, support, and votes. Generally, "legislators believe that issues matter and ... they act in accordance with this belief" (Arnold 1990, 37). Political events, such as votes in Congress or policy debates, offer candidates such an opportunity to communicate their preferences to one or more of their potential audiences, such as interest groups. Tweets on policies and issues can provide an opportunity for congressional candidates to engage with national discussions and offer their stances on these topics. Today, many direct forms of communication are represented in a candidate's Twitter posts: they share speeches that they make, screen shots or links to press releases and their websites, as well as reminders about and links to television and radio appearances. The decision about whether to make a public statement is not a trivial one; while a political message can provide many benefits to a campaign, it can also be used as a weapon against the candidate by current or future political opponents (Arnold 1990).

In the interviews that I conducted in the fall of 2018, the respondents stated that they assumed and hope that their tweets were seen by certain groups and individuals.

Despite their differences, the candidates and staff that I spoke to think (and hope) that interest groups are observing their campaigns on Twitter (though they had varying beliefs about the reality of this occurring, or how frequently, mainly based on how much of a perceived serious contender they were in their district). When I asked who they perceived to be the individuals or groups who are most likely to see their posts, several answered interest groups and activists (usually in reference to issue areas that are important to his or her district, such as health care or immigration). They particularly referenced those who they perceive as allies engaging in this type of behavior.

3.3.2 Interest Group Perspective

Though this project primarily focuses on the motivations and behavior of congressional candidates, we must spend time on interest groups to better understand campaigns— what they want, the strategies available to them, and which candidates they choose to target to help them to accomplish their goals. These groups have incentives to influence the political process in a way that they and their cause can benefit, such as access to members of Congress and their staff, their preferred policy being enacted (and policies that they dislike not), and for their allies to be in office to be more likely and more willing to propose and help pass their preferred policies.

Tax Status: Types of Interest Groups

The options available to a given interest group are shaped by its tax status. Depending on its classification, groups have the option to choose to use one or more of several strategies and tools to help make these positive outcomes more likely.I consider only non-profits, of which there are several types. In the following sections I will introduce the groups whose contribution behavior I consider, but generally they fall into one of four IRS tax code sections or statuses, as shown in Table 3.1: 501(c)(3), 501(c)(4), 501(c)(5), or 501(c)(6) (*Labor and Agricultural Organizations* 2020, *Pub-*

lication 557: Tax-Exempt Status for Your Organization 2020). As will be outlined in greater detail in Chapter 6, these issue areas are labor, agricultural, and LGBTQ issues.

Organizations tax exempt under 501(c)(3) includes religious or charitable groups, and face the most limitations on their political activity unless they have an associated PAC (political action committee). They cannot maintain their tax status and participate in behaviors like making public statements (such as tweets) that support (or oppose) a candidate or campaign.[3] Examples of 501(c)(3)'s include the American Council of the Blind, the Coalition to Abolish Slavery and Trafficking, and 4-H. The second type of interest group are those exempt under 501(c)(4), who can get and maintain their tax exemption status and participate in some political activities (such as supporting or opposing a candidate) only if it can show proof that its main goal is to promote social welfare (*Publication 557: Tax-Exempt Status for Your Organization* 2020, 48) rather than these political behaviors. Examples of this type of group include the American Conservative Union, the Sierra Club, and Food Policy Action.

In comparison to the first two classes of groups, those exempt under 501(c)(5) and 501(c)(6) are less restricted in their ability to participate in politics. 501(c)(5)'s are composed of both labor organizations, which are "association[s] of workers who have combined to protect and promote the interests of the members by bargaining collectively with their employers to secure better working conditions, wages, and similar benefits" (*Publication 557: Tax-Exempt Status for Your Organization* 2020, 48) and agricultural and horticultural organizations, which are "connected with raising livestock, cultivating land, raising and harvesting crops or aquatic resources, cultivating

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[3]As stated by the IRS: "If any of the activities (whether or not substantial) of [the] organization consist of participating in, or intervening in, any political campaign on behalf of (or in opposition to) any candidate for public office, [the] organization won't qualify for tax-exempt status under section 501(c)(3)." Such participation or intervention includes the publishing or distributing of statements (*Publication 557: Tax-Exempt Status for Your Organization* 2020, 23)" and "In general, if a substantial part of the activities of [the] organization consists of carrying on propaganda or otherwise attempting to influence legislation, [the] organization's exemption from federal income tax will be denied" (*Publication 557: Tax-Exempt Status for Your Organization* 2020, 46).

Section of Tax Code	Types of Groups	Potential Political Activities
501(c)(3)	Religious, Educational, Charitable, Scientific, Literary, Testing for Public Safety, to Foster National or International Amateur Sports Competition, or Prevention of Cruelty to Children or Animals Organizations	Cannot support (or oppose) a political campaign, including in statements, lobby, or spend a "substantial part" of their activities trying to influence legislation
501(c)(4)	Civic Leagues, Social Welfare Organizations; and Local Associations of Employees	May lobby and support (or oppose) legislation or a campaign ONLY if doing so promotes social welfare
501(c)(5)	Labor, Agricultural, and Horticultural Organizations	Can do so if related to area of interest
501(c)(6)	Business Leagues, Chambers of Commerce, Real Estate Boards, etc.	Yes if in common business interest of organization's members

Table 3.1: Overview of IRS tax statuses and potential strategies taken by interest groups.

useful or ornamental plants, and similar pursuits" (*Publication 557: Tax-Exempt Status for Your Organization* 2020, 49). They can maintain their tax exempt status and engage in political activities such as lobbying in areas related to the organization's purpose, defined as "the betterment of conditions of those engaged in the pursuits of labor, agriculture, or horticulture, the improvement of the grade of their products, and the development of a higher degree of efficiency in their respective occupations" (*Labor and Agricultural Organizations* 2020).[4] Examples of 501(c)(5)'s include Change To Win and the American Farm Bureau. An organization exempt under 501(c)(6) can participate politically, such as by lobbying for a law, if it does so in an effort to advance the common business interests of its members (*Publication 557: Tax-Exempt Status for Your Organization* 2020, 50). Examples include the American Academy of

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[4]But may need to let members know how much of their budget they spend on these activities.

Matrimonial Lawyers, the National Restaurant Association, and the Association of Equipment Manufacturers.

The ability of a group to participate in the political process, such as through lobbying, campaigning for a given candidate, or contributing to a campaign, varies by their tax status, as described above. Given that a group has some tools to achieve its political goals, how do they choose to focus and leverage their resources to best achieve favorable outcomes? Of particular interest here— how do they make these choices with regards to their support (or lack thereof) for congressional candidates?

Which Candidates Should Interest Groups Support?

This theory applies to those groups who can, in some capacity, engage in political activity, particularly by engaging with and actively supporting, or opposing, congressional candidates and representatives in office.[5] Previous studies have suggested potential reasons *why* interest groups support campaigns— whether by giving them money or in some other way. Contributions in particular offer interest groups temporal flexibility— they can donate close to an election to try and help their preferred candidate be more likely to succeed, but they are not limited to only contributing at such a time and can give money throughout a congressional term and election cycle. Wawro found that corporate and labor PACs (political action committees) gave to representatives throughout their term— likely due to events throughout the two-year span.

In previous work, it has been suggested that they do so to attempt to influence the policy-making process, whether through access to the candidate and his or her staff (see Chin, Bond and Geva 2000, Chin 2005, Herndon 1982, Kalla and Broockman 2016, Langbein 1986), floor votes (see Stratmann 1991), committee activities (see Grier and Munger 1991, Hall and Wayman 1990, Parrott 2019), or to increase the

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[5]Here this excludes 501(c)(3)'s, though I acknowledge that even if a group cannot, for example, actively support or oppose a given candidate they are likely to have political and issue preferences.

likelihood of the (re)election of a sympathetic representative. However, evidence that they are actually able to influence representative behavior, such as their votes on relevant legislation, is mixed to lacking (see Wawro 2001).

If an interest group has the ability to engage in political activities and maintain their tax exempt status, it is in their interest to strategically use their potentially limited resources (such as time, staff, information, members, and money) as they work to achieve their goals. There are factors for the groups to consider— 1) who are their most likely allies and opponents are (i.e. who most agrees or disagrees with their policy preferences), 2) which members are the most influential in the House in their issue area, and 3) which party is likely to win in the upcoming election? There is mixed evidence about the type of candidate that an interest group will contribute to— a known ally, someone on the fence who may be persuadable, or the likely winner of the election (who may be an enemy). Hall and Wayman found that organized interests were able to influence the behavior of allies, but when they contributed to opponents they either received no benefit or were hurt (1990).

When deciding whether to support a candidate, interest groups consider his or her party affiliation. On many issue areas, political party can be a useful heuristic of the beliefs and preferences held by a candidate or representative. For example, labor groups share they are more likely to hold an affinity for Democrats while business groups are more likely to feel more aligned with Republicans (Grier and Munger 1993, Herndon 1982). For incumbents, their voting record can be used as a further check to ensure that they behave and vote as expected in Congress. For challengers, their party may act as a more informative signal of how a candidate may behave if elected as it may be the only signal available for interest groups to observe. However, new technologies like Twitter may lower this barrier for candidates and interest groups alike by making it easier for them to state their preferences and for others to observe their posts.

Brunell suggests that interest groups' simultaneously desire for their preferred party to be in the majority and access to whichever party is in power (2005). Therefore, though groups may have a more natural partisan affiliation (such as corporate groups with Republicans) who they will contribute to in an effort to increase that party's chance of electoral success, they will also give to their non-preferred party's candidates— not to influence the election, but just enough to gain access if that party wins the majority in the House. Hall and Deardorff suggest instead that lobbying by interest groups is a form of "legislative subsidy"; rather than persuading a legislator to change their behavior, support from an interest group reinforces the actions that a politician was already going to take (2006; see also Hall and Wayman 1990).

Another consideration for interest groups when contributing to members of Congress are their committee memberships. Evidence has been found that groups focus their resources on members in the most relevant committees for their area (see Grier and Munger 1993, Hojnacki and Kimball 1998, Parrott 2019, Powell and Grimmer 2016), in order to maximize their potential influence over the policy-making process. Committee members, and especially committee leaders, have more power over the content (and existence) of a bill under their purview than the average member of the House. Hojnacki and Kimball surveyed interest groups about their lobbying during the committee stage of the policymaking process, and found that they focused first on allies on the committee, then on the undecided, and then on opponents (if they had sufficient resources to be able to do so) (1998).

Usually studies on the effect of money on politics grapple with the potentially illegal efforts of organized interests to buy influence over or votes by politicians. On top of this, it is difficult to make the case (and likely incorrect to do so) that contributions to a member of Congress alone resulted in a change in their vote on the floor or in committee, or that they voted only to receive future financial support; even at their most influential these contributions are one of several factors that may

shape such politician decision-making (along with district preferences, past votes on similar issues, the party line, and the members' own personal beliefs). However, these organizations continue to give money to candidates for Congress, and these efforts can be beneficial to campaigns. Hall and Wayman make the point that it is a legislator's time and effort that an interest group may be chasing more than a single vote, which they measure through committee mark ups and interviews with staff (1990). If this is the case, a low-cost platform like Twitter may be another such venue for a candidate or member of Congress to engage with an issue and the groups most focused on it.

Previous work focuses on goals of interest groups— here, I consider the interactions between organized interests and politicians from the perspective of the candidate for Congress rather than the interest group. By giving money in response to a candidate's tweet, interest groups signal back and reinforce the message that they support the candidate and want them to maintain their public stance(s). For this to be the case, we need evidence that 1) using Twitter to communicate directly to interest groups is a recognized strategy by congressional campaigns, as I did in the previous chapter, but also 2) it is a strategy also recognized by the interest groups themselves, and 3) whether these behaviors lead to offline (or "real world") benefits for the campaigns. I outline my theoretical expectations for these behaviors in the following hypotheses, which are tested in Chapter 6:

Hypothesis 1: Candidates who tweet about an issue area are more likely to receive more contributions from groups in that area than candidates who do not.

Hypothesis 2: Candidates who tweet more about an issue area are more likely to receive more contributions from groups in that area than those who do not.

3.3.3 Other Types of Political Elites?

Party Leadership & Other Campaigns

Another audience which campaigns attempt to use tweets to reach are other politicians— this can include party leaders at the state and national level as well as other campaigns. There are pieces of information that party leadership wants to know about candidates (especially challengers, who are relative unknowns). This is particularly true for candidates seeking to focus on national issues in their campaigns, as it can act as a signal for how a candidate is likely to vote on certain key (partisan) issues if elected. For these more national issues, as the American political system becomes more polarized, it becomes more important for Representatives of a party to vote together and toe the party line in order to try and get their own legislation passed (or stop the opposing party from passing their preferred legislation). This could create incentives for candidates to signal their willingness to be a "good" Republican or a "good" Democrat, not only for partisan voters, but also party organizations and leaders. In contrast, some challengers explicitly seek to avoid the national party organizations and therefore do not want to be noticed by this type of political elite. Several Democratic candidates and staff that I interviewed mentioned seeking to separate themselves from the Democratic Party and Nancy Pelosi as they ran in 2018, while others explicitly replied to and re-tweeted prominent national party figures.

In my interviews I received mixed responses about how frequently the campaigns observe each other's social media activity; they ranged from making a point to avoid other campaign's accounts to actively learning and seeking to incorporate other campaign's choices into their own. For example, the communications director of a challenger seeking to unseat a nationally prominent incumbent noted that she observes the social media behavior of Senate races, as she perceived her candidate's race as more similar to Beto O'Rourke's 2018 Senate run in Texas than another House races

in her own state. Campaign staff also mentioned observing their opponent's posts and opinions, and actively countering them, but also in trying to set the narrative of the race themselves in an effort to force their opponent to play defense instead.

The News Media

Campaigns are aware of, and sometimes seek out, the attention of media on Twitter— primarily in their district, but sometimes national outlets as well. From my interviews, they shared that they believe journalists are more likely see their posts on Twitter than on Facebook. Evidence of this goal has been found on other platforms. Candidates desire to be in the news, and "attempt to enhance the amount of attention they receive and control the terms in which they are covered" (Iyengar and Kinder 1987, p. 98). Sellers (2000) noted how hard it can be for legislators to get attention from the public and the media, but that increased positive attention is something they desire to help them be more successful in Congress. Candidates may hope to generate talking points and greater attention around their race and campaign though their use of social media, by attempting to induce journalists to spend more time covering their race and to provide information that the journalists and media organizations can spread to a wider audience (e.g. to voters) than the candidate would be able to reach otherwise.

Campaigns are often running short on time. Social media can help to relieve this burden. One campaign manager stated that he sees social media as a place to post statements which are not at the level of press releases. This puts less pressure on the campaign, as it involves less pomp and circumstance than a press release, but can still be a public signal to the media if they are interested about the candidate's position on a certain topic or other information about the campaign and its activities. A candidate that I interviewed stated that she liked it when local journalists were more informed about her race from her online presence, as they asked less "stupid" questions.

The possibility of this additional (if indirect) path to reach voters is appealing for campaigns. It is more realistic for them to expect local media attention, such as providing information about events in the district. However, a small group of candidates (mostly incumbents, and some challengers) receive attention from national media. For example, in 2017 Congressman Ted Lieu (D-CA 33) was covered by national news networks for his tweets attacking President Donald Trump. Similarly, freshman Alexandria Ocasio-Cortez's (NY-14) tweets frequently go viral and are discussed on the news. One of the candidates that I interviewed rattled off a list of national outlets that covered her and her race, including Cosmo, MSNBC, The New York Times, and Fox and Friends. This increase in attention can be desirable to campaigns; it is possible that through this coverage, posts can make it to more potential voters and other individuals nationally. Though this is not always the norm for the average candidate running for Congress, the possibility that this may happen to them may be enough to generate strategic behavior on Twitter *just in case* it occurs.

Chapter 4 Twitter Data Collection & Descriptive Trends

This chapter illustrates broad trends in congressional campaign behavior on social media; it explores what campaigns are posting on their accounts, who they choose to follow, and who follows them. I outline the data collection process necessary to scrape this information, show trends over time and across campaigns, and classify tweets and Twitter users by type. It offers a descriptive overview of what campaigns said on Twitter, and a first look at who they may believe is most likely to see it— their followers.

Each tweet made by a campaign is classified as having either a "national" or a "local" focus, and each candidate's friend or follower is classified as an "elite" or "non-elite" and also by location (whether they self-place within the same state as the candidate they are connected to). These data, methods, and metrics are used in the remaining chapters to test which audiences campaigns are reaching out to, and whether the campaigns receive any benefits from these behaviors.

To be able to scrape campaign tweets, friends, and followers, I compiled a list of all candidates who ran for office in the House in 2018. I combined several online sources to create a comprehensive list of these individuals, such as Ballotpedia and Wikipedia.[1] Including all candidates who dropped out prior to their primary, those who lost in the primary, and those who continued on the general election, about 2,800 (2,797) candidates competed in the 2018 mid-terms.[2]

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[1]For the state of Pennsylvania: `https://en.wikipedia.org/wiki/2018_United_States_` `House_of_Representatives_elections_in_Pennsylvania` and `https://ballotpedia.org/` `United_States_House_of_Representatives_elections_in_Pennsylvania,_2018`

[2]I had previously scraped every active Twitter account from the top two candidates in the general election for the House in November 2016. There is overlap between these campaigns and those who

I created a full list of each candidate's name, district, and state and sought to collect all of their social media usernames and handles to use to scrape as necessary. I individually Googled each name and made note of any Twitter handles, Facebook usernames, or Instagram accounts connected to them state by state. I finalized the list of candidates after the state's filing deadline and initially scraped that account's Twitter data prior to the primary date. Many candidates have more than one active account, and when that was the case I collected all handles that I could find. Though I only scraped Twitter accounts, and they are the focus of this chapter and broader dissertation, I offer a brief overview of how many of these candidates chose to create profiles (or didn't) on these common social media platforms.

Of the 2,797 candidates, 412 had no online presence that I could find— no website, Facebook, Instagram, or Twitter accounts. Of these, 135 withdrew before their primary. Another 78 had a website but no social media presence. This means that 490/2797, or about 18% of the candidates, were not online. This does not consider the quality of the page and its content, or if the campaign was active on it relative to other campaigns, or even at all— some campaigns, for example, appear to have created a Twitter account and then never tweeted after that.

For those candidates who had social media profiles, there was variation in use across platforms. Twitter was the most common platform used. 2,138 candidates, about 76%, had at least one Twitter account. There are 2,434 accounts of candidates who ran in 2018 included in the data used in this project; though some accounts were deactivated and I was not able to scrape its posts, other candidates had more than one active account. Facebook was the second most common platform, which 1,870

ran in 2018. An issue with handles from 2016 is that I could only collect them for general election candidates. It is virtually impossible to access Twitter data from candidates who lost in their primary in previous elections, because they deactivated their social media accounts. This is a smaller problem for the general election; almost 1/3 of candidates who lost deactivated their Twitter accounts by January and February 2017, when I conducted that initial piece of my data collection.

candidates, or 69%, had an account on. Instagram was the least common of the three; only 589 candidates, 21%, had Instagram accounts.

4.1 Tweets: What are Campaigns Posting?

What are campaigns actually saying on Twitter? Tweets are commonly used to provide information, such as policy positions or actions taken by the member. For example, Hemphill, Otterbacher and Shapiro found position-taking and information-providing as the two most common congressional usages of tweets, each comprising 44% and 22% of their sample of tweets, respectively (2013). In the first half of this chapter, I provide an overview of posts by candidates who ran in 2016 and 2018— how frequently they posted on the platform, but also what they tweeted about. The main focus of this analysis is a description of the proportion of campaign posts that engaged with national partisan or policy issues, as compared to providing information about themselves or campaign events (more local in focus). I also show trends in behavior by different types of candidates such as between Republicans and Democrats, incumbents and challengers, and by race and gender.

As I sought out the social media accounts of congressional candidates, I also coded demographic information about their gender and race. For most candidates this was very clear from their pictures, name, and biography or description. This was more ambiguous in terms of race, though clearer for incumbents than challengers. For example, membership in the Congressional Black Caucus was a useful signal of how that individual identifies. Often a candidate included something in their biography about being a "child of immigrants from country-x" and I used that in the coding.

4.1.1 Scraping Tweets

I scraped 2,025,565 unique tweets by congressional campaigns. This dataset goes back as early as 2007 for a small number of candidates. The initial scrape of candidate tweets was done after a state's filing deadline but before the primary election, in order to scrape tweets before losers deactivated their accounts. This was an effort to minimize the problem that I encountered in 2016. I updated the scraped tweets several times, to be able to maintain full coverage over the election period and beyond.[3] For all candidates in a state I scraped on the primary election day, one week afterwards, and then several months after, dropping duplicate tweets each time. As anticipated, many accounts of candidates who ran in their district's primary but lost were deactivated soon after. This means that there were no updated tweets for those users, but I was able to collect their posts up to that point.

On Twitter today, many Representatives have both an official Twitter account as a member of Congress as well as a campaign account. Each serves a different purpose, is maintained by different people[4], and is likely to contain different content[5]. The official accounts are regulated in a similar way to the politicians' websites— for example, they must include their title (such as congressman or congresswoman) in the name on the account (Straus and Glassman 2016).

An overview of the frequencies with which all candidates tweeted by demographic information, including but not limited to race and gender, is shown in Table 4.1. The average number of tweets by any candidate was 991. Over half of candidates are Democrats, and they tweeted at a slightly higher frequency than Republicans.

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[3]I started scraping with the *twitteR* package, but then moved to *rtweet*. The Twitter API sets a limit of up to 3,200 tweets that can be scraped. For the initial scrape I called up to thta limit, though most accounts posted much less than that. This means that I was able to scrape all of their tweets and stay well below the threshold.

[4]Staff in the Representative's office, whose time is paid for by funds appropriated to the office ("House resources"), can only post on the official account. In contrast, the campaign account is not regulated in this way, though posts cannot be made by those who are paid for by "House resources" (Straus and Glassman 2016).

[5]Posts related to the campaign cannot be shared on the official account.

	Type (n)	Median	Mean	Maximum
All Candidates		692	991	6,705
Party	Republican (779)	685	973	5,928
	Democratic (1,152)	734	1,032	6,705
	Other (143)	504	752	4,542
Incumbency	Incumbent (383)	1,381	1,667	5,928
	Challenger (1,691)	558	837	6,705
Gender	Female (527)	829	1,113	5,393
	Male (1,547)	648	949	6,705
Race	White (1,629)	685	980	6,705
	Non-white (443)	742	1,034	5,393

Table 4.1: Tweet frequency by type of candidate.

Incumbents tweeted much more frequently than challengers, though (of course) there are many more challengers than there are incumbents, especially when considering the 2018 election. To account for uncertainty when I coded candidate race, I present differences in behavior between white and non-white candidates. Most candidates were white and male; less than a third are female and about a quarter are non-white. Women tended to tweet more frequently than men, and non-white candidates tweeted more frequently than white candidates.

4.1.2   Classifying Tweets: National or Local Focus?

The commonness of congressional candidate tweet behavior is not the only, or even the most interesting, piece of information that we can learn from their posts. Beyond how frequently candidates tweet, it is also important to begin to understand *what* they tweet. One choice that a campaign makes when posting, as suggested by my interviews with campaigns in the fall of 2018, is the distinction between tweeting about a national or a local topic. Another way to think of this is the difference between attempting to mobilize your partisan base or instead avoiding doing so. I outlined the theoretical reasons supporting this choice, and discussed insights from my interviews in greater detail, previously in Chapters 2 and 3.

When a campaign takes a more national focus, they are seeking to gain and maintain the support of their strongest and most partisan supporters in the district. Alternatively, choosing to avoid such national topics and instead using a more local or district-level focus on the campaign's activities or the candidate themselves sends a different type of signal. This distinction between national and local appeals, and particularly the language used to describe this, is influenced and supported by the campaigns that I interviewed. In order to test differences and changes both between candidates and for a single candidate over the course of their campaign, I classified every tweet that the candidates posted using a supervised topic model.[6]

Training the Classifier

To classify the over 2 million tweets made by congressional campaigns, I used a supervised topic model. In a *supervised* model, a random sample of previously coded texts (here, tweets that I handcoded) are used to provide additional information to the model, which uses those insights to predict the classification of the remaining, non-handcoded, tweets. Each tweet was classified as one of two categories: national or local. As outlined previously, this choice was made based on the two types of appeals campaigns can choose from, and was supported in my interviews as language used by candidates and their staff.

I handcoded a random sample of 7,343 tweets (10% of all tweets by candidates in the state) posted by Pennsylvanian candidates as either national or local. Examples of topics which I classified into each type of appeal are provided in Table 4.2. The handcoded tweets are all from Pennsylvanian candidates because that is the data that I labeled by hand to use to classify tweets to test if campaigns tweet primarily to communicate directly to their voters in Chapter 5.[7] Though the language used

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[6]Though many previous studies of congressional Twitter usage utilized handcoding alone (see Glassman, Straus and Shogan 2009; 2013, Russell 2018), this is not a feasible or effective strategy for this project due to the quantity of tweets that I have scraped.

[7]In the future I plan to classify tweets at a much more granular level by sub-topic (e.g. health, immigration, constituents, holidays, etc.).

National Focus		Local Focus	
National people	Donald Trump, Nancy Pelosi, Barack Obama, national party organizations	Campaign information	Canvassing, phone banks, yard signs, fundraising, reminders to vote
National issues	Environment, abortion, gun control & 2nd Amendment, immigration, Iran, Russia, Obamacare & ACA, Medicare	Personal information	Family & pets, religious statements & Bible verses, holidays & anniversaries, sports

Table 4.2: Examples of classification topics.

in a "local" tweet by a candidate in Pennsylvania is likely to be less similar to the "local" tweet by a candidate in California than a fellow Pennsylvanian candidate, the "national" posts by candidates across the country should be quite similar.

The inclusion of the politicians and issues shown in the "National" column of Table 4.2 led to an immediate classification as a national tweet. This is not a comprehensive list of such topics. Additional topics which were coded as national were opponents or other races across the state or country, mentioning a "blue wave" or taking back the House in 2018, and endorsements by party organizations. Tweets which I labeled as national and working to mobilize the candidate's base are shown in Figure 4.1.[8] National content flags include references to politicians (then-Representative Goodlatte, VA-6), the national parties (the GOP), and national political topics (gun control). Though not present in either of these examples, a reference to President Trump was common.

The tweets coded as local included, but are not limited to, the topics outlined in the right column of Table 4.2. They fell into two main categories— campaign information (which did not reference politicians or national policies) and personal information about the candidate and her family. Examples included holiday wishes, references to sports teams, and logistical information about the campaign's activities and how to support it. Tweets which were classified as local, or working to persuade

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[8]Art Halvorsen lost in the Republican primary in PA-13 and Dwight Evans (Democrat) was re-elected into the new PA-3.The tweet boxes are re-created using *faketweeter.com*, but the user, time posted, and likes/retweets counts are accurate.

moderates in the district, are shown in Figure 4.2.[9] Here the candidates do not invoke national politics and instead reference being in their district and provide information about voting (when polls closed for the primary on May 15th).

Figure 4.1: Examples of national-coded tweets.
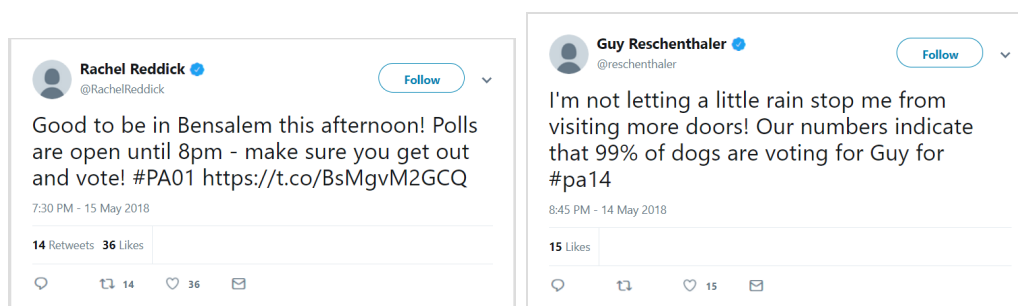
Figure 4.2: Examples of local-coded tweets.

Supervised Topic Model & Assessment

I used the 7,343 hand-coded tweets to train a supervised topic model to classify the remaining campaign tweets. Here, I used the topic model to find patterns in the tweet data— to associate certain words more heavily with national or local tweets, and then make a prediction about how likely a tweet is to be on a national topic. To do this, the classifier estimated a logistic regression model with five-fold cross validation to predict whether a tweet is about a national topic or not.[10]

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[9]Rachel Reddick lost in the Democratic primary in PA-1 and Guy Reschenthaler (Republican) was elected for the first time in PA-14.

[10]I used the *glmnet* R package to do so. This means that five separate times a random subset of tweets was removed and the remaining tweets were used to predict their classifications. The overall accuracy of the classifier provided below is the average of these five.

Before I trained the classifier, I pre-processed the tweets to remove unnecessary features and clean the text. The order in which I took the steps was the same for all tweets, and I chose this order to best maintain the original meaning of the texts as much as possible. These steps are listed below, and include removing emojis and "RT's", replacing common political terms, removing punctuation, and removing stop words:

1. Removed common tweet features (e.g. emojis/emoticons, links, "RT").

2. Replaced some common/political words (e.g. "realDonaldTrump" with "Trump", "GOP" with Republican, "Dem(s)" with "Democrat", "Pres" with "President").

3. Replaced Pennyslvania-specific words (e.g. "PA" with "Pennsylvania", "PHL" with "Philadelphia").

4. Converted all-capital words/acronyms to all lowercase (e.g. "NRA" to "nra").

5. Split compound words/hashtags by capital letter (e.g. "gopTaxScam" to "gop Tax Scam").

6. Removed punctuation ($, !, :, #, @, etc.).

7. Made all text lowercase.

8. Removed stop words (e.g. "and", "the").

I split the hand-coded tweets into a training set (5,875, or 80% of the tweets) and a test set (the remaining 20%, or 1,468 tweets). The training set, and associated labels, are used to train the classifier. At the end of the process, I assessed the classifier's accuracy by using it to predict the classification of the tweets in the test set and comparing those predictions to my "true" hand-coded values.

Before that, I further prepped both the pre-processed training and test sets for the classification process by "tokenizing" each tweet (splitting the clean text into individual tokens, or words) in the corpus (all documents, or all tweets) using the *text2vec* package in R. To do so, I created a "vocabulary" object of every unique word in each tweet. Here, I also created a vector of term counts across all documents

and a vector of document counts that contain each term. I used these to create a document-term matrix where every row is a document (here, a tweet) and every column represents one of the unique terms from the corpus that contains all of the training set tweets.

From this training set, the dimensions of this matrix are 5,875 x 14,435— there are 5,875 tweets and 14,435 unique terms (after pre-processing). A count of the number of times Term_i is present in Document_j is shown in each cell. This matrix is "sparse"— there are mostly 0's, meaning that a given term is not present in a specific document. This is not surprising— tweets are limited to either 140 or 280 characters (depending on when the post was created) and there are over 14,000 unique terms. An example of a document-term matrix is shown in Table 4.3 (though not the one used).

The final step in preparing the training set was to transform each document-term matrix based on the importance of individual words using the tf-idf (term frequency-inverse document frequency). This weights the value of each token by taking into account both the number of times that a given token appears in a document (here, an individual tweet) as well as the broader corpus of text (here, all tweets in the training set). In other words, it considers the importance of the word. I then used the pre-trained tf-idf to transform the test data sample of tweets into its own matrix as well.

	Term_1	Term_2	Term_3	Term_4	Term_5	Term_6	...	Term_{14435}
Document_1	0	1	1	0	0	0	...	0
Document_2	2	1	0	0	0	0	...	0
Document_3	0	1	0	0	1	0	...	0
...	...	...	...	...	...	...	...	...
Document_{5875}	0	0	2	0	0	0	...	1

Table 4.3: Stylized document-term matrix.

The topic model suggested a classification in line with me about 82% of the time. The confusion matrix for one of the test sets is shown in Table 4.4. This compares my classifications to the predicted classification from the supervised topic model,

n = 1468	Predicted: National	Predicted: Local
Actual: National	433	196
Actual: Local	69	770

Table 4.4: Confusion matrix for a test set classification of tweet type.

by category. As can be seen, the classier was more accurate at labeling a tweet as national than local.

To assess the accuracy of this classification, I took a random sample of 1,000 of these newly classified tweets that I had never previous hand-coded and hand-coded the posts without knowing the predicted classification from the topic model. Upon comparing the predicted values and my own scores, the model was about 82% accurate. I then used the trained classifier to make predictions of the topic of the remaining tweets. It is these tweet classifications which are utilized in the subsequent chapters.[11] Overall, the supervised topic model predicted that 620,209 of the congressional tweets were about a national topic, about 30%, and the remaining 70%, or 1,405,356, were about a local topic. This is lower than the tweet breakdown of about 40% national and 60% local when limited to only Pennsylvanian tweets, and is likely an under count of national tweets.

Trends in Tweets

Figure 4.3 plots the monthly number of tweets made by candidates. The darker line shows the frequency of national tweets, while the lighter line shows the frequency of tweets classified as local. For both, the left panel presents the Twitter behavior of Democrats, while Republican posts are plotted in the right panel. As can be seen, the data starts in 2007 for a small number of candidates (these from 2016 and 2018 incumbents who were early adopters of the technology) and the number of tweets increases over time. This increase is likely due to a combination of Twitter becoming

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[11]This level of accuracy is similar to that used in other work. For example, Roback and Hemphill (2013) used a small subset of hand-coded tweets about different "lobbying strategies" used by users tweeting to members of Congress to train a naive Bayes classifier which had an average accuracy rate of 86%.

more commonly used by politicians over the years and the entry of candidates who created accounts to run in 2018. Figure 4.3 also provides a visualization of a trend from Table 4.1— though both tweeted thousands of times per month, Democratic candidates who ran for the House tweeted more frequently than Republicans.

Of most interest here, across time and for both parties, the proportion of local tweets is always more common than national tweets (about 70% to 30% on average). Both increase in frequency over time as the total number of tweets increase. The largest difference between the two is present from the end of 2017 to the end of 2018, when the monthly number of tweets is over 20,000 between the two parties. At their peak, national tweets make up over a third as many tweets as local ones during this time frame.
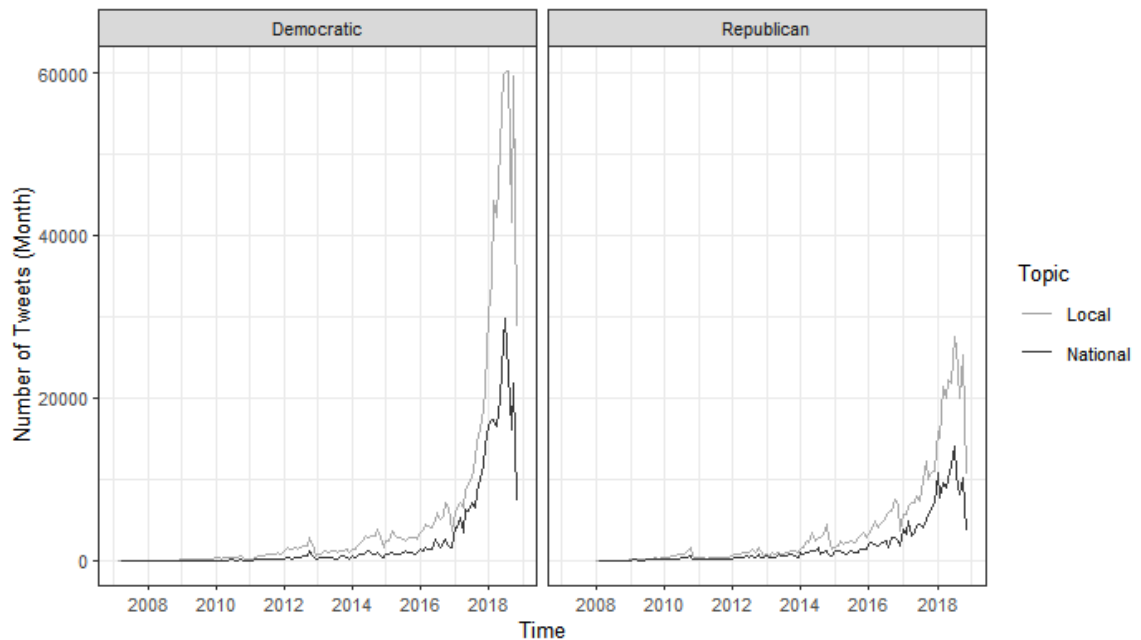
Figure 4.3: Plot of the number of monthly tweets of all 2018 congressional candidates.

4.2   Friends & Followers: Which Users Are in the Campaign's Network?

Beyond tweeting, there are several other actions that campaigns take on Twitter. They can be followed by other users who want to see their posts and can follow other users themselves ("friend"). Each of these require some type of engagement with another Twitter user. For the next part of the analysis, I will describe the data collection and classification processes that enable me to describe who the users are that congressional campaigns are followed by and follow themselves. In Chapter 5 I will also use these metrics to consider who Pennsylvanian campaigns mentioned and replied to in their posts. A deeper understanding of who these Twitter accounts are can be helpful to our understanding of why and how congressional campaigns may use Twitter. An important part of my theory is that the perceived audience for a candidate's campaign communication matters and shapes their behavior. The followers of a candidate's social media accounts represent the smallest possible group of users who can or have seen that content, and can be seen and known by the campaign.

Potential followers for these accounts include any individuals or organizations who have social media presences— this includes but is not limited to voters, individuals from outside of a candidate's district, politicians, other political entities, media organizations, think tanks, interest groups, businesses, charities, etc. Though there can be a broad range of followers, the point of comparison that I am most interested in is that between "voters" and "elites", as described in Chapter 3. A more detailed breakdown of what types of elites or non-voters (e.g. media organization or journalist, interest group, politician, business, etc.) is a goal for future work.

Who a candidate's followers are has important implications for what considerations we could expect to shape a campaign's social media activity. For example, a

candidate who is followed by a high proportion of non-voters, or whose district is highly partisan, may focus more of their social media posts on national political topics, while a candidate who is followed by a higher proportion of voters from within her district may instead provide more information about her campaign.

4.2.1 Scraping the Data

For friends and followers of congressional campaigns, I used the *tweetscores* R package to scrape all associated users that each account followed and was followed by. The Twitter API sets a rate limit of 75,000 identification pulls (the unique identification number of each friend/follower) and 15,000 users' account scrapes every 15 minutes. For 2,400 accounts, many of which had thousands of followers, this was a lengthy process. I scraped followers of incumbents between January and March 2018 and their friends in May 2018. For challengers, I scraped friends and followers by state as I scraped their tweets; after the filing deadline but before their primary. This ranged from March to November 2018, but mostly during the summer. When I scraped information on each user I collected their name, location, description, the date their account was created, the number of tweets they made, the number of friends they have, and the number of followers they have (as of the day I scraped), as well as the scrape date and time.

I kept track of *which* candidate each user was tied to; it is not the case that once a user entered my data as a follower of Candidate A I do not include them if they also follow Candidate B. Rather, the user is counted separately for each relevant candidate, across both friends and followers (if applicable). This information on the users who followed or were followed by congressional campaigns can help us to learn, at least at a snapshot in time, what this universe of users looked like. For example: how many of them are there? who are they? where are they? In the following sections I will present descriptive information that begins to answer these questions.

Figure 4.4: Representative Chrissy Houlahan's Twitter page with highlighted sections.

Figure 4.4 shows a screenshot of Representative Chrissy Houlahan's Twitter page, to illustrate where and what the pieces of information are that I scraped on each friend and follower. The top box (black) is her description; the second box (grey) is her location. The bottom two boxes (blue on the left, brown on the right) show the number of friends, 332 users that she is following, and the number of followers, 20,400.

4.2.2 How Many Friends & Followers?

Overall, I scraped information on 28,270,362 congressional campaign followers and 3,229,624 friends. There are many more followers than friends; this is not surprising, given that anyone can choose to follow another user on Twitter, but candidates are

not likely to follow as widely. The plot of the number of followers of all congressional candidates is shown in Figure 4.5. Due to the long right tail, outliers (the 519 candidates who had more than 9,384 followers) are excluded from the plot. The median number of followers of the non-outliers, 730, is represented by the dashed vertical line. If all candidates are considered, the median number of followers is 1,284, the average is 10,782, and the maximum is 1,714,989 (Paul Ryan's (WI-1) official Speaker of the House account, @SpeakerRyan).
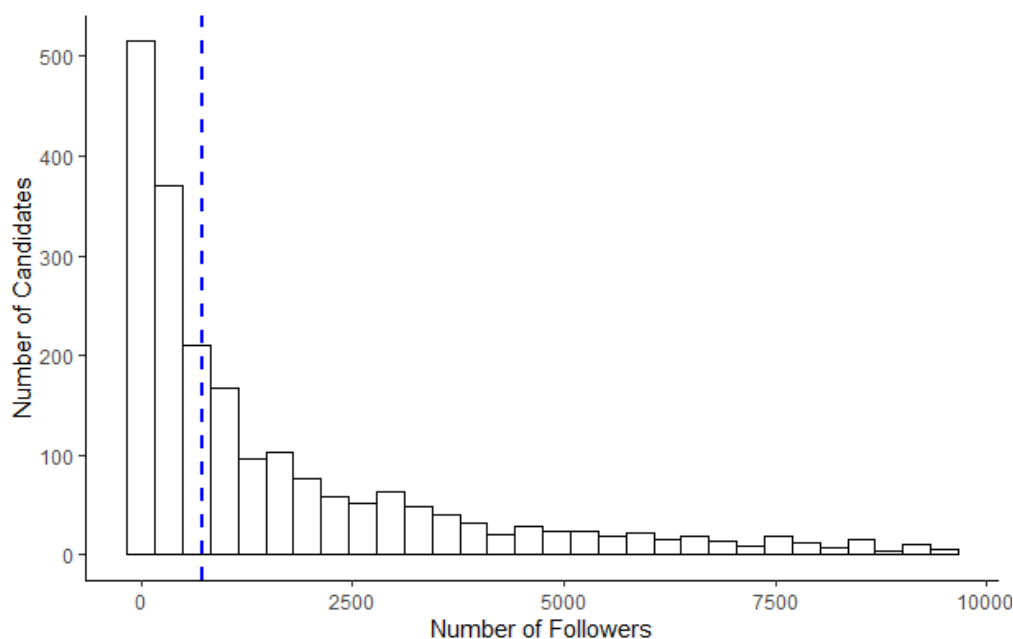
Figure 4.5: Plot of the number of followers of candidates who ran in 2018.

The campaigns with the most number of followers are: Rep. Paul Ryan's Speaker account (@SpeakerRyan), Rep. Nancy Pelosi (1,192,894, @NancyPelosi, CA-12, Democratic), Rep. Paul Ryan's regular account (836,471, @PRyan, WI-1, Republican), Rep. Ted Lieu (701,885, @tedlieu, CA-33, Democratic), Rep. John Lewis (666,238, @repjohnlewis, GA-5, Democratic), Rep. Adam Schiff (665,900, @RepAdamSchiff, CA-28, Democratic), Rep. Trey Gowdy (642,994, @TGowdySC, SC-4, Republican), Rep. Joe Kennedy (450,725, @RepJoeKennedy, MA-4, Democratic), Brian Evans (416,061, @croon1, HI-2, Republican), and Jason Chaffetz (391,148, @jasoninthehouse,

UT-3, (then) Republican). Of the top 10, 5 are Republicans (two for Representative Paul Ryan); all were incumbents except for Brian Evans. Most are figures of national political prominence (e.g. Nancy Pelosi, John Lewis) though Brian Evans is a famous singer who challenged Rep. Tulsi Gabbard for Hawaii's second district in 2018.
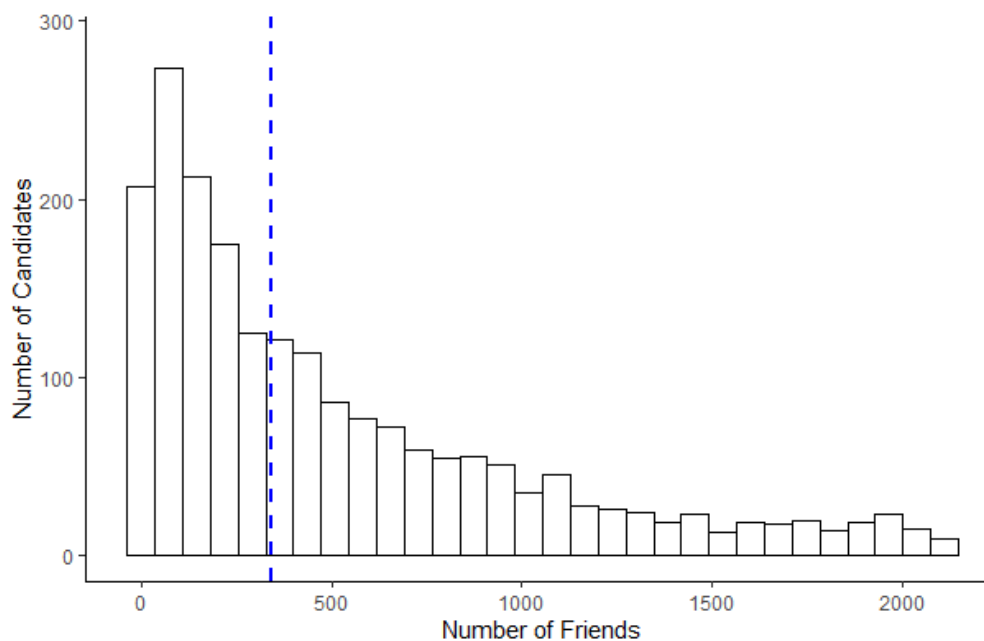
Figure 4.6: Plot of the number of friends of candidates who ran in 2018.

Similarly, the histogram of the number of friends per congressional candidate is shown in Figure 4.6. As with followers, the 383 outliers who had greater than 2,122 friends are excluded from the plot. The dashed vertical line represents the median number of non-outlier friends, 343, and the average number of this subset is 519. The median including these excluded candidates is 465 and the mean is 1,335 friends. Most campaigns followed relatively few accounts, especially compared to the number of accounts that followed them.

The candidates with the highest number of friends were Rachel Barnhart (54,640, @rachbarnhart, NY-25, Democratic), J.D. Scholten (57,159, @Scholten4Iowa, IA-4, Democratic), Ryan Guillory (53,393, @Mr_RyanGuillory, GA-4, Democratic), Shastina Sandman (49,823, @Shastina_Eloff, CA-48, Republican), Rep. Darrell Issa (33,629,

@DarrellIssa, CA-49, Republican), Marco Gutierrez (27,629, @MarcoGutierrez, CA-9, Republican), Andy Thorburn (26,704, @AndyThorbornCA, CA-39, Democratic), Omar Navarro (25,721, @RealOmarNavarro, CA-43, Republican), Antonio Sabato, Jr. (25,543, @AntonioSabatoJr, CA-26, Republican), and Kevin Cavanaugh (23,241, @kev4congress, AZ-1, Republican). Of the top 10 candidates here, 6 are Republicans and 4 are Democrats. Only one (Representative Darrell Issa) was an incumbent, and the rest were challengers.

	Type	Median	Mean	Maximum
Followers	All Candidates	1,284	10,782	1,714,989
	Republican	1,522	12,011	1,714,989
	Democratic	1,461	10,899	1,192,894
	Other	164	1,916	63,089
	Incumbent	11,442	30,617	1,714,989
	Challenger	719	4,430	416,061
Friends	All Candidates	465	1,335	65,460
	Republican	459	1,305	49,823
	Democratic	499	1,404	65,460
	Other	215	926	10,260
	Incumbent	725	1,497	33,629
	Challenger	385	1,289	65,460

Table 4.5: Number of friend and follower frequencies by type of candidate.

A more detailed breakdown of the number of friends and followers by candidate features (party and incumbency status) is provided in Table 4.5. As shown previously, candidates have many more followers than they do friends. There is not a substantial difference between Democrats and Republicans, particularly for the number of followers that a candidate has. The "Other" political party label includes third-party candidates, mainly from the Green or Libertarian Party, and make up only a handful of candidates. In later sections I will consider ways in which *who* these other users are may differ more between the parties.

However, there are differences between incumbents (here, those elected in the 2016 elections) and 2018 challengers (those not previously elected in 2016). Both the median and average incumbent had several times more followers than the median and average challenger (11,442 compared to 719 and 30,617 compared to 4,430, respectively). This is not surprising, and is likely due to a combination of factors such as an incumbents' higher profile, longer time being involved in politics, and more resources to have designated communication and/or social media staff. Though the incumbent with the highest number of followers, Paul Ryan, had over three times as many followers as the most followed challenger, Brian Evans, both are still incredibly high with hundreds of thousands (or millions) of followers.

The difference between incumbents and challengers can still be seen in friends (who those campaigns chose to follow), though less stark than with followers. At the extreme, the candidate with the most friends overall was challenger Rachel Barnhart, who lost in the Democratic primary in NY-25, and was a well-known New York journalist before her House run; this was almost twice as many friends as the highest incumbent, Darrell Issa, who had 33,639 friends. Challengers may have still chosen to follow hundreds (or thousands) of other users to be more like incumbents, to signal to those other users that they were interested in their posts, or even to try and spread and magnify the knowledge that they existed and were running for office. I will classify who those users are that campaigns chose to follow in the following sections.

4.2.3 Who are the Users that Follow & Are Followed by Campaigns?

Beyond overall trends of how many Twitter users a candidate follows or is followed by, we would like to know more about *who* those users are. The goal of this dissertation project is to better understand why (here, I suggest *for whom*) congressional candidates use Twitter. An initial way to explore this is to assess who the users are

that follow campaigns, and who the campaigns choose to follow. Though a tweet's potential audience extends beyond the posting-user's followers, they do represent a known quantity that the campaigns are aware of. What a campaign perceives to be the wishes of its followers may shape what it posts. Following from the theory laid out in the previous chapter, one key distinction that may shape a campaign's actions is whether a user is a voter or an elite (a non-elite or an elite). Is a candidate followed by voters in her state, or nationally? Does she choose to follow other campaigns but not voters? I offer preliminary evidence for these types of questions.

There are several ways to label a Twitter user as a voter or a non-voter. The first is to consider the number of followers that a user has— for example, a user with 100 followers is much less likely to be an elite of some kind than a user with over 10,000 followers. Additional information about a user can be found using how they self-locate and self-describe on their profile; are they an "elite" or a "non-elite"? Are they from the candidate's state? Though a user can lie about who they are, it is this public information that campaigns may see and choose to engage with, and that I use to classify these accounts. I introduce my data and consider each metric in turn below.

How Many Followers Does the User Have?

An initial way to assess who a user is (whether they are an elite or not) is by how many followers he or she has. A "regular person" is more likely to have fewer followers than a celebrity, politician, or organization. For each congressional candidate, I calculated the proportion of their followers who had 10,000 followers or more themselves. Though a rough measure, this is a useful initial estimate of how many of a candidate's friends and followers are potentially average citizens (or even voters) from across the country, or something else. I show the median and mean proportions

of campaign followers with more than 10,000 followers in Table 4.6.[12] For friends of the campaigns, the median proportion who had 10,000 followers or more is just over 0.4, or 40%; the mean is slightly higher at about 43%.

	Median Proportion 10K+	Mean Proportion 10K+
Friends	0.4007	0.4245
Followers	0.0692	0.0942

Table 4.6: Proportion of candidate friends and followers with more than 10,000 followers.

In contrast, the proportion of a candidate's followers who had 10,000 followers or greater was less than 0.1, or 10%. This distinction has interesting implications; it suggests that, though choosing to follow another user is essentially costless, campaigns may strategically choose to follow many users on Twitter that are less likely to be non-elites. However, the number of followers that a user has is not a perfect metric for whether they are a voter or elite; several congressional campaigns had less than 10,000 followers, and some non-elites have incredibly active and popular profiles. In the next section, I take a more rigorous approach to determining who campaigns follow and who follows them by classifying users by type.

Classifying Users: Type

I use a supervised topic model similar to the one described above, when I classified tweets as national or local, to classify Twitter users by type. To do so, I predict the probability that a user is an "elite" (or not). Here, an elite may include another politician or campaign, a party organization, media figures, interest groups, and even businesses. In contrast, a non-elite is an individual who is not an elite; he or she is instead a member of the mass public or a "regular person".

Just over a third of all followers that I was able to scrape information on throughout the spring, summer, and fall of 2018 (10,097,927) did not have a description.

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[12]This includes only those users who had a non-blank description in their profile, as is discussed in greater detail below.

Handle	Description
@DarrellIssa	I work for CA-49, Chair the Subcommittee on Courts, Intellectual Property, and the Internet, & serve on the House Committee on Foreign Affairs.
@stuartvjohnson	Vice President of Digital Works, a Connected Nation (501C3) program that provides training for the 21st century.
@TheJamesNani	Tax correspondent with @Law360. Former reporter with Times Herald-Record and @recordonline. SUNY New Paltz alumni. Newburgh.
@CollegeDemsSIUE	@CollegeDemsIL chapter at SIUE. Committed to electing Democrats up and down the ballot and having fun while doing it.
@bsupolisci	Official Twitter page of the Political Science Department at Bridgewater State University

Table 4.7: Examples of friends and followers classified as elite.

This means that they chose to leave that part of their profile blank. I am therefore not able to say as much about who these users are than those who made this information publicly available. The following discussion about classification is limited to those users with non-blank descriptions, and I will return to these users in more detail when I discuss the trends in follower data. Of the campaign followers with text in their description, I took a random sample of 42,480 users to handcode as an elite or non-elite. I labeled a user as an elite if they referenced, for example, being in office or a candidate for office, being a journalist, or if it was not a person (e.g. a business, a county political party, a news organization, etc.) in their description. Examples of users which I labeled as elite are shown in Table 4.7; I present their handle and description from when I scraped their information. The first of these is then-Representative Darrell Issa (CA-49); the second is a man who works for a 501(c)(3) non-profit; the third is a journalist; the fourth is a College Democrats chapter; and the fifth is the Twitter account for the Political Science Department at Bridgewater State University.

To show the contrast between users that I hand-labeled as elite to those whom I did not, examples of non-elite users are shown in Table 4.8. These are accounts

Handle	Description
@tess_emrgl	the real Leslie Knope of your community
@RockLikeRFK	Follow me and my "toxic masculinity." 100% conservative. #MAGA
@employexpert	Liberal,Democrat,Feminist,Hillary Clinton supporter,Detest DJT and the assholes that voted for him or the dying GOP loyalists who chose party over Country.
@ktjojobeanie	Expat American living in and loving Cornwall, mother/survivor of ultra adorable twins, newbie surfer/rower/watersportswoman and law student.

Table 4.8: Examples of friends and followers classified as non-elite.

of "regular people". A non-elite may or may not express political views in their description; as shown in Table 4.8, the second and third examples do but the first and fourth do not. Though I have not tested it, I suspect that Twitter users who choose to follow a congressional candidate are more likely than the average Twitter user to share their political viewpoint in their Twitter biography.

As with the tweets, I pre-processed the users' descriptions before I trained the classifier. These steps included removing URLs, punctuation, #'s and @'s, making the text lowercase, removing common English stopwords, and removing excess spaces. I again chose to use a supervised topic model to classify each friend or follower as an elite or a non-elite. I randomly split the hand-labeled tweets into a training set (33,984, or 80%) and a test set (the remaining 20%, or 8,496). As before, the training set user descriptions are used to train the classifier, and its predictions of the test set are compared to my hand-labeled "true" values. A confusion matrix showing the comparison between my labels and the predicted classification is shown in Table 4.9. Overall, the classifier and I were in agreement 94% of the time, though it was more accurate at correctly classifying a non-elite than an elite; it was 70% accurate at classifying elites and 94% accurate at classifying non-elites.[13]

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[13]In future iterations of this classification, I will take steps to work to increase the accuracy of the classification generally, but particularly among elites.

n = 8,496	Predicted: Elite	Predicted: Non-Elite
Actual: Elite	293	463
Actual: Non-Elite	84	7,656

Table 4.9: Confusion matrix for a follower type's test set.

Plots of the proportion of followers and friends classified as "elite" are shown in Figure 4.7 and Figure 4.8. Those shown here are limited to those users who had a non-blank description on their profile. Most of the users were not labeled as elites, and this is starkest among campaign followers. Though the proportion elite of a handful of candidate followers and friends were classified as either all or nothing, this is limited to those candidates who engaged with very few users in this way. The dashed vertical line in Figure 4.7 represents the median proportion of a candidate's followers who were classified as elite— only 13%. Most candidates have 25% or fewer elite followers. This is likely an under-count of elite users, as the classifier is more accurate at correctly labeling non-elites, but the true proportion is certainly still very low. This is not necessarily surprising, given that anyone can choose to follow a congressional candidate (across the United States and even internationally) and the population of non-elites who could follow a campaign is much larger than the population of elites who could so the same.

We can consider what the incorporation of the followers without descriptions does to these proportions. Though we don't know who these users are (or at least who they say they are), we can create bounds of the proportion of elite for all followers. The minimum proportion of elite followers occurs when none of those with blank descriptions would have been classified as elite, and the maximum possible proportion is if they are all elite (though this is unlikely). Plots of these two scenarios are in the Appendix, though the pattern of a minority of followers listed as elite remains. If all followers with blank descriptions are included as non-elites, the median proportion of elite followers drops to just under 10% and an average proportion of 11%. Instead, if all followers with blank descriptions are included as elites, the median proportion of
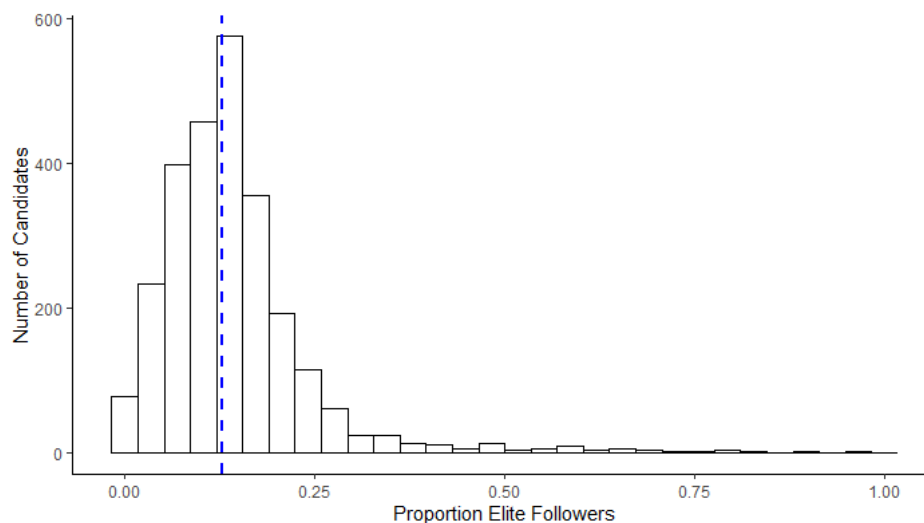
Figure 4.7: Distribution of proportion of elite-classified followers by candidate, for users with a listed description on their profile.
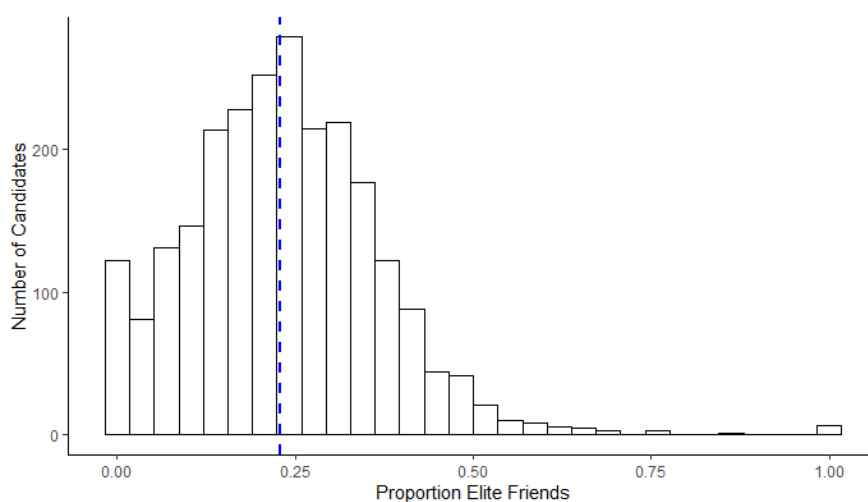
Figure 4.8: Distribution of proportion of elite-classified friends by candidate, for users with a listed description on their profile.

elite followers is 31% and the average is 32%. Though much higher, this situation is unlikely and still represents a minority of followers as potentially political elites.

The distribution of the proportion of elite-classified friends is more dispersed than for followers, as shown in Figure 4.8. The dashed vertical line shows the median proportion of elite friends and is slightly higher than for followers at 23% (though again, it is likely an underestimate of the true proportion). For most candidates, about half or fewer of their friends are labeled as elites. Again, we can consider the

addition of friends with blank descriptions. Plots of these distributions are provided in the Appendix. If we assume that none of these friends are political elites, then the median proportion drops slightly to 21%. Instead, if we assume that all of these friends are political elites, an unlikely scenario, the proportion of elite friends rises to 29%. Even in these extreme situation, most of the users that campaigns chose to follow are not political elites.

In the next section I will consider *where* these friends and followers are located— given that most of these users are non-elites (and therefore potentially voters), are they from the candidate's state, or elsewhere?

Classifying Users: Location

Another feature of a Twitter user that may be informative to a campaign is where that user is located; is he or she in their district or state? Particularly for those classified as "non-elites" above, is that individual a potential constituent? There are several existing strategies which scholars have used to geo-locate Twitter users.[14] One of the first and most common was using geo-tagged tweets and/or users whose location was enabled. A Twitter user has to opt in to enable "precise location" and can opt out at any point. Even once you opt in, you have control over whether a location (and how detailed of a location) is attached to each tweet; the platform will suggest potential location labels and you can use which, if any, to use. With the location enabled on your device (usually a smart phone), the GPS coordinates of your device can be tied to your tweets (Twitter N.d.).

These strategies were assumed to be the gold standard for classifying tweet and tweet-er location. However, this behavior is undertaken by a small minority of Twitter users— Sloan et al. found that only 0.85% of the random sample of tweets that they

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[14]New methods are also being actively developed, such as the developing project "Finding Friends— A Network Approach to Geo-locating Twitter Users" by Nik Loynes et al. (2020) which combines how a user self-describes in the "location" part of their Twitter profile and the centroid of the self-reported location of their friends and followers.

took in July 2012 were geotagged (2013). A small sample from millions of tweets isn't inherently problematic if random, but subsequent research has found systematic differences between the types of users who opt in to sharing their location, actually choose to geo-tag their tweets, or neither, in terms of age, race, gender, and language (Sloan and Morgan 2015).

As such a small and non-representative minority of Twitter users choose to geotag their posts, rather than relying on that limited metric to classify a user's location, I consider both how they self-describe in their "location" and "description" on their profile and compare this to the candidate they follow or are followed by. This is an imperfect method, but offers a first cut at understanding where these users are. I am helped here that my universe of Twitter users is restricted to those who are friends or followers of congressional candidates, rather than all users nationally or worldwide. Overall, 84% of all candidate followers and 89% of friends in this subset (users who have a non-blank description) list *a* location on their profile (although this may or not be a real or informative place, e.g. "your head" or "earth") and others provide location information in their description. I am much more confident in my ability to correctly place a user in a state than in a city, let alone a congressional district (as in big cities there are often several), and that is what I report here.

To label each users' location, I created location dictionaries of fully lowercase and first letter capitalized names for 1) full state or 2) city, state abbreviation. I then compared these values (if a location was mentioned) to the state of the campaign they either followed or were followed by. If, for example, the user self-described their location as "Philadelphia, PA" and the candidate they followed was Chrissy Houlahan who ran in Pennsylvania's 6th district, then that user would be coded as from the same state as the candidate. A user was classified as being from the same state as any candidate they followed or were followed by if the candidate's state was referenced at least once.
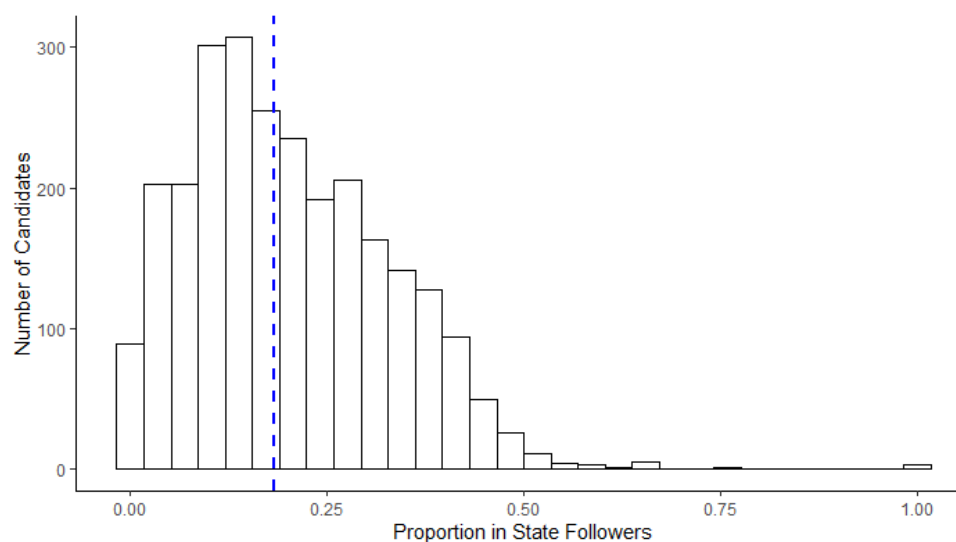
Figure 4.9: Distribution of proportion of followers in candidate's state, for users with a listed description on their profile.

A plot of the proportion of a campaign's followers who were labeled as in the same state as the candidate, and had a non-blank description in their Twitter profile, is shown in Figure 4.9. A majority of these users have a location listed, but as can be seen many of these locations do not match the candidate that they followed. The dashed vertical line represents the median proportion of in-state followers and has a value of 18%. For most of these candidates, less than half of their followers are from their state. This is particularly surprising given that using state (rather than city or district) is likely to be an overestimate of followers who may actually be constituents, particularly for larger states.

A slightly higher proportion of these candidate friends were classified as being from the same state as their followers, shown in Figure 4.10. The median proportion of in-state users is about 23%. However, most candidates followed more Twitter users who were not from their state than those were were from their state; most had 50% or less in-state friends. This is particularly low if we would have expected campaigns to primarily follow users within their own state, let alone district, elite or otherwise.
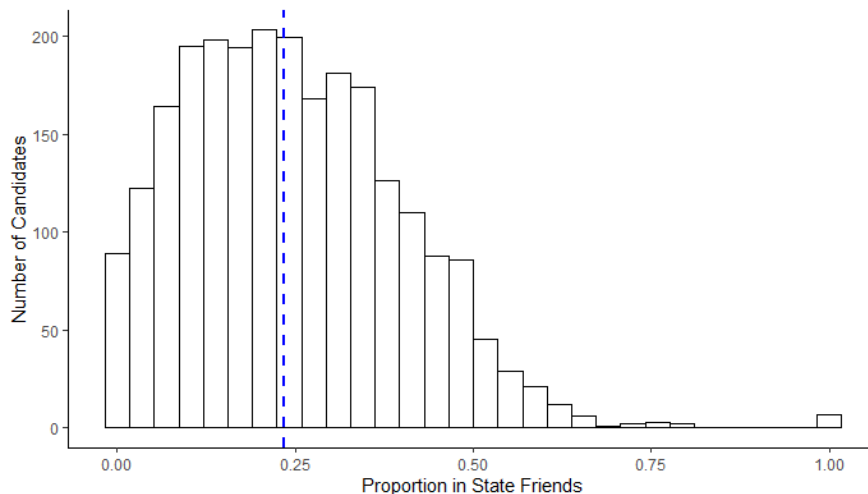
Figure 4.10: Distribution of proportion of friends in candidate's state, for users with a listed description on their profile.

As above when considering the proportion of a campaign's elite followers and friends, we should consider what the addition of users with blank descriptions, either as all in-state or none in-state, does to these trends. Plots of the distribution of these blank users labeled as either in state or not in state are in the Appendix, for both followers and friends.

At a minimum, if none of the followers with blank descriptions are actually from the candidate's state, the median proportion of followers drops to about 14%. If all of these followers are from the candidate's state (not likely), at most this proportion rises to a median of 37%. Though the latter value is twice as high as that for all followers that had a description on their profile, the proportion of users placed within the state of the candidate that they follow on Twitter is still very small overall. Similarly, for campaign friends, if none of the friends with blank descriptions would have been labeled as in state, the median proportion drops slightly to 22%. If all of these friends were from the candidate's state, the proportion rises to 29%.

4.3 Conclusions

In this chapter, I detailed the data collection process for this dissertation project. I compiled the full list of congressional candidates who ran in 2018 (and those who ran in the 2016 general election) and scraped all of their tweets, friends, and followers. This begins to create an overview of what these candidates said, who they believe might have seen it (at a minimum), and who the campaigns chose to follow themselves.

The candidates tweeted over 2 million times leading up to the election in November 2018. Though some tweets in the data go back to 2007, most are from 2016 on. To dive deeper into their posts, I classified each tweet as having either a national or a local focus. Overall, about 70% of tweets were local and 30% were national. In the next chapter, I will use this distinction to test whether candidates changed their tweet content to better cater to their voters following the February 2018 redistricting in the state of Pennsylvania.

In the second part of the chapter, I considered the Twitter users who are a part of a candidate's network— who follow them and who they choose to follow. I scraped data on over 28 million followers and 3 million friends. Followers represent a first circle of potential audience members to a candidate's tweets— individuals or organizations who chose to send a cheap signal to the campaign that they are interested in what it posts. Friends are those users that campaigns wish to send the same signal to— that they are paying attention or want to see what that user tweets.

At the crux of this project is the importance of audience on campaign communication; how a campaign's beliefs about who they need to reach, whether they can do so, and if that goal audience sees and responds favorably shapes their actions. I sought to gain a deeper understanding of *who* these friends and followers are in several ways— are they potentially political elites, and where are they located? Candidate friends are more likely than candidate followers to have a higher number of followers

themselves (suggestive that they are not "regular people") and to be classified as an elite. Friends are slightly more likely to have self-located within the same state as the candidate who follows them. Though these metrics do not perfectly classify a user's type or location, they suggest that most of a congressional campaign's followers are not political elites, and though some of these non-elites do self-locate in the candidate's state, most do not. This implies that the Twitter users who choose to follow a congressional campaign, beyond political elites, are voters from across the country.

By using only information drawn from a follower's profile in their listed location or description, I leveraged data that a campaign staffer or a candidate could see for themselves. Though a campaign is unlikely to have the expertise or resources to do this scraping and classification of all of their followers, this is the type of conclusion that they could draw from simply scrolling through the accounts that follow the campaign. Importantly, this is one of the few options available for the average campaign to draw a conclusion about which users are most likely to see their tweets. Given what I have found and presented here, if they chose to, campaigns would be able to realize that their main audience on Twitter is a mixture of political elites and voters not in their district, but nationwide. I will consider these possibilities, by pushing back against the underlying assumptions in the literature and testing the theory presented in the previous chapter, in Chapters 5 and 6.

Chapter 5 Changing Audiences, Changing Messages?

Politicians at all levels of American government have made increasing use of social media platforms such as Twitter, Facebook, and Instagram over the past several years, the latest in the long line of technological innovations that they have adopted over time. Why do politicians use these platforms today— who do they target when they post, and what are the implications for who they do (or do not) target? The answers to these questions can help us to better understand political campaigns and the role of political information in American elections; here, I focus on congressional campaigns and their use of Twitter.

One House race which recently rose into the national spotlight was the special election in Pennsylvania's (then) 18th District in March of 2018, where Democrat Conor Lamb narrowly defeated Republican Rick Saccone. This outcome was surprising, as President Trump had won the district in 2016 by almost 20 points over Hillary Clinton, but over the course of the campaign the district became increasingly competitive. Despite the national attention on his campaign, and the desires of outspoken liberal activists up in arms over Trump's presidency, Lamb took many stances which could be described as more moderate and in line with his district. For example, he stated that he would not support Nancy Pelosi as Speaker of the House of Representatives if Democrats took back the majority in November 2018 and rarely mentioned President Trump (Nilsen 2018). This focus away from national political figures was clear in his campaign's behavior on Twitter, where a majority of tweets were not about such topics, but instead provided logistical information about his campaign or

him as a person, and is a strategy which seemed to be effective in the competitive district where he ran.

This relationship, of a politician shaping the content of her social media posts to communicate directly to voters, is one which has been suggested by many political scientists and was outlined in greater detail in Chapters 2 and 3. Such an idea of Twitter as a positive political space, regardless of intended audience, sounds almost naive today; hopes that Twitter would be a force for good in politics have not borne out. The scale of Twitter has also grown tremendously; even with the best of intentions on the part of politicians and their campaigns, it is impossible to respond fully to every constituent on the platform. However, it does not preclude the possibility that politicians use the site to provide information to (even small) groups of engaged voters in their district. If this is the case, Twitter can still be a space in which politicians can represent and be accountable to their constituents.

I find evidence inconsistent with this narrative, using qualitative evidence from interviews I conducted with congressional candidates and campaign staff, as well as analysis of who campaigns speak directly to on Twitter (tweet mention behavior), and what candidates who ran in the 2018 midterm elections said in their posts. In this chapter, I leverage the 2018 redistricting that occurred in the state of Pennsylvania to assess if congressional campaigns changed their tweet content. By doing so, I propose a more complete answer to the scholarly understanding of the purpose of a campaign's use of Twitter— not as a space to reach directly to your voters, but rather a tool to speak with fellow elites, whether to provide information to these elites directly and/or as an indirect pathway to reach voters. I define a political elite broadly— I include other politicians and candidates from all levels of government, party officials at the local and national levels, journalists and media organizations nationally and within the district or state, and interest groups and activists.

By expanding the focus on a campaign's use of Twitter from solely a direct link between politicians and voters to include the possibility of other actors and indirect communication to constituents, I de-cloud the incomplete assumptions of previous work and suggest that a campaign's digital constituency is wider than we had first believed. This has implications for our understanding of the impact of Twitter on the democratic features of American politics, as well as both the American institutions and behavior literatures.

I test this question using a situation which should put extraordinary pressure on a campaign to communicate directly to voters on Twitter— the recent redistricting which occurred in Pennsylvania in February 2018. In this case, redrawn U.S. House district boundaries were released one month before the filing deadline and less than three months before the primary elections that May. Some candidates were forced to compete in districts where they were facing a different electorate with a different partisan composition, looking ahead to a primary fight against their co-partisans. If campaigns are ever to use their tweets to target voters in their district, then following such a redistricting I argue that campaigns will change the content of their tweets to better appeal to the new voters whose support they are working to gain. It can be politically costly if a candidate changes too suddenly, as they can be critiqued as flip-flopping, but we should still be able to find evidence of changes in their campaign communications. Whether campaigns are using Twitter to communicate directly to voters or using the platform for some other purpose has implications for American democracy. Are politicians using the site to communicate directly to the voters who put them into office, increasing their representativeness to their constituents? It is this broad question which this project seeks to answer— Is social media enhancing democratic features of American politics? Or, more specifically, do congressional campaigns communicate directly to voters on Twitter?

The chapter continues with a descriptive analysis of who politicians interact with on Twitter. I then briefly return to the theoretical implications of the extant claims of the literature and how it predicts campaigns' use of social media varies by electoral features from Chapter 3. After that, I describe the data collection process and how I test this theory using tweets made by Pennsylvanian congressional candidates who ran in the 2018 mid-terms. After that I present my results, and end with conclusions and a discussion about campaigns and political communications in a digital age and implications for our democratic goals and political discourse.

5.1 Who Do Politicians Interact With On Twitter?

As a first test of who congressional campaigns communicate to when they tweet, I consider who they interact with on the platform through a descriptive analysis of their mentions and replies— when a tweet is posted in direct response (or to) a specific user. If a campaign tweets directly to a another Twitter account, who is it? Do they primarily interact and engage directly with voters (in their state or nationally)? Do they instead tweet to non-voters? Choosing to reference another user by handle, such as "@realDonaldTrump", rather than simply "Donald Trump" is a significant choice; in the former the user is notified that they were mentioned in another's post and it may pop up in their follower's newsfeeds. If candidates use their Twitter accounts to focus on their voters, we should see most of their mentions and replies directed to users in the candidate's district or state.

There are several ways to label a Twitter user as a voter or a non-voter. The first is to consider one who is "Verified" (noted by the blue check mark next to a user's name). Another is to consider the number of followers that a user has— a user with 100 followers is much less likely to be an elite of some kind than a user with 10,000 followers. A final method to determine if a user is a voter or not is to classify the

user by how they self-describe in their Twitter description. I introduce my data and consider each in turn below.

5.1.1 Data

In later sections I will test more rigorously whether campaigns use Twitter to communicate directly to voters in their district, but first I will dive deeper and provide initial descriptive evidence of who they interact and engage with on Twitter. As with the subsequent analysis, I focus here on the behavior of Pennsylvanian candidates and campaigns. I took a random sample of 5% of all tweets made by 2018 candidates in Pennsylvania— of the over 73,000 tweets in total, this was a sample of 3,671. 951 of the 3,671 tweets were a mention or reply. This excludes re-tweets and includes any time that a congressional campaign tweeted directly to another user using their Twitter handle. An example is shown in Figure 5.1.

Figure 5.1: Example of a tweet containing mentions.

1,639 users were tweeted to in the 951 mention-tweets and I scraped information on each of these users.This includes many pieces of data, but of particular use here are the user's name, description, location, number of followers, and whether they are verified. I use this to assess campaign mention behavior below and examine *who* the users are that congressional campaigns in Pennsylvania mentioned and replied to in their tweets.

Is the User Verified?

Twitter describes verified accounts as those of "public interest... [t]ypically this includes accounts maintained by users in music, acting, fashion, government, politics, religion, journalism, media, sports, business, and other key interest areas" (Twitter Help). A user has to request to receive this status from Twitter. Although it is not a perfect indicator of whether or not an account does represent someone of "public interest" to a campaign (a non-incumbent running for office is not often verified and Taylor Swift is), it serves as a first test of whether campaigns are mainly tweeting to their voters because most voters will not be verified Twitter users. 819 of the 1,639 users mentioned in the random sample of Pennsylvania tweets are verified— about 50%. If we assume verified accounts include primarily non-voters— political elites like Representatives from across the country or the National Association of Manufacturers, celebrities like George Takei, or colleges like Wilkes University— then in this sample of tweets campaigns spoke equally to voters and non-voters. This suggests that the focus of mentions is not completely on voters, but more information and analysis is needed. I now turn to the number of followers of each account as an additional test.

How Many Followers Does the User Have?

Of the users that campaigns tweeted to, the number of followers each has ranges from 0 to 107,739,812 (President Barack Obama). The density is shown in Figure 5.2; this is limited to non-outliers due to the long right tail.[1] The median number of followers of all the accounts mentioned or tweeted to by candidates for Congress is 9,878. Though still not conclusive evidence of who campaigns are using their Twitter accounts to communicate to, it is suggestive of a similar pattern to how many of these accounts are verified— that perhaps Twitter is being used to speak to more

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[1]Calculated using Q3+(IQR*1.5) = 199,035 as the cutoff above which a user is considered an outlier.
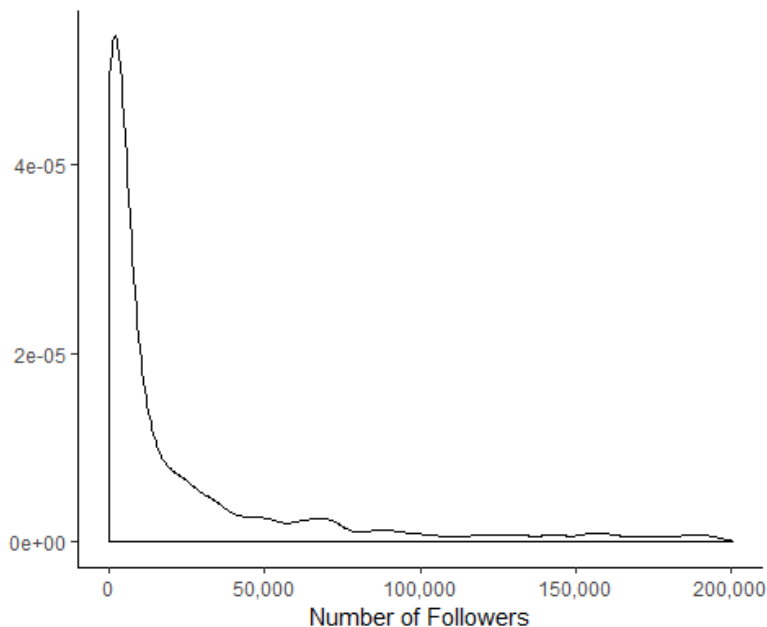
Figure 5.2: Density of the number of followers of Pennsylvanian campaign accounts.

than just voters. To provide a still more complete picture of who these users are that campaigns tweeted to, I now classify their type.

Who is the User?

I classify each user that congressional campaigns tweeted to by how they self-describe in their Twitter biography and listed location. Though a user can lie about who they are, it is this public information that campaigns see and choose to engage with. Using the same rationale as outlined in Chapter 4, I initially classified these users as elite or non-elite (an elite or a voter). For this random sub-sample of Twitter users mentioned by campaigns, I also go further by hand-coding the elites by type.

Of the 951 mention-tweets, 671 were directed to political elites— 71% of the tweets. Users included in this group of political elites include politicians, journalists, and non-profits for a total of 993 accounts. A more detailed breakdown of these users is provided in Table 5.1. As can be seen, the most common type of political elite that campaigns tweeted to were other government-related accounts; they make up almost half of all users mentioned. Broadly, this includes other politicians (U.S.

Elite Type	Frequency	Examples
Government (Party, Politician, Agency)	465 (46.8%)	Barack Obama, Conor Lamb, Ajit Pai (FCC), FBI, GOP
Media (Journalists, News Organizations)	334 (33.7%)	Philadelphia Tribune, The New Yorker, Julian Routh (Pittsburgh Post Gazette)
Activists (Unions, Non-profits, Interest Groups)	194 (19.5%)	Indivisible Philadelphia, Forest America, NRA

Table 5.1: Frequency and examples of the type of political elite mentioned by Pennsylvanian campaigns.

Representatives, PA General Assembly members, Senators, and presidents), party organizations (at the national and county-level), as well as government agencies and committees in the House.

The next most common type of political elite is media, at about a third of all users. This includes journalists, editors, and news organizations locally and nationally, across newspapers, magazines, radio, and television. The final type of elite are activists and they comprise just under 20% of mentioned users. This includes unions, non-profits, and interest groups; these types of accounts frequently self-described as "advocates" for a certain group or policy area.

Above is a relatively conservative conceptualization of what an "elite" is— those remaining 738 Twitter users classified as not political elites are not necessarily voters. Included in the remaining 29% of the total sample of mention-tweets includes messages directed to religious organizations, YouTube, (non-political) podcasts, the Philadelphia Eagles, and Wawa. If we included these accounts with the political elites as a broader category of "non-voters", the overall proportion of mention-tweets they make rises to 84% (797 tweets). This leaves just 16% of mention-tweets ostensibly going to voters. But where are these users located? If they live in the state of Pennsylvania they are potentially voters for these campaigns, but if they live elsewhere, this is less likely.
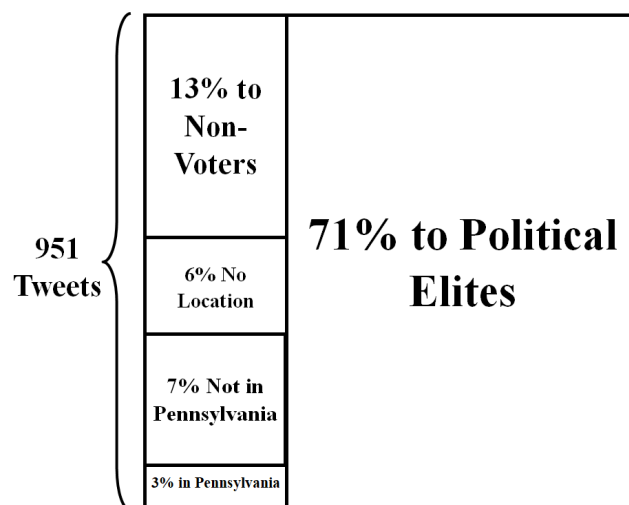
Figure 5.3: Breakdown of the sample's mention and reply tweets.

Of the 154 tweets in this category of potential voters, a maximum of 16% of all mention-tweets who may go to a voter in Pennsylvania, 6% of all posts (about one third) do not have a location listed. Of the remaining 10% of all tweets, only 3% mention or reply to a user who may be a voter in the state. This is only 32 of the 951 tweets. The complete breakdown of who the sample of mention and reply tweets went to is provided in Figure 5.3. This is stronger evidence against the commonly-held assumption that tweets made by these campaigns are directed to voters, but it is still not sufficient evidence to fully answer the question of whether social media enhances the democratic features of American politics by providing an avenue for direct communication between politicians and voters. Just because a campaign does not tweet directly to voters does not mean that they do not shape their overall content for them, and there are findings in previous work that suggest that this is the case.

5.2 Campaign Communications

The composition of the primary and general electorates shapes candidates' choices on how they present themselves to the public (Fenno 1978). How does this connect to how congressional candidates use Twitter? Based on their environment and political

goals, I offer a strategic choice that they make on the platform between an appeal which galvanizes co-partisans to turn out and support the candidate or one which seeks a broader base of ideological support by persuading moderates. In their messaging, campaigns must decide whether to discuss national topics or instead avoid such topics in favor of local and district-level issues. If campaigns are speaking to their voters on Twitter, I argue that the choice between these types of appeals is one which campaigns make. The distinction between these two types of appeals is often analogous to that between a national and local focus, and it is these labels which were used by the campaigns who I interviewed. Typically, the challenge for a campaign is deciding what proportion of its social media posts to focus on each topic.

When a campaign takes a more national focus, they are seeking to gain and maintain the support of their strongest and most partisan supporters in the district. One effective method for this is to focus most heavily on national political issues and people. In terms of tweets, examples of topics which could be used by a campaign to take this more national approach include Donald Trump, immigration, abortion, the environment, taxes, health care, and Nancy Pelosi. Alternatively, choosing to avoid such national topics and instead using a more local or district-level focus on the campaign's activities or the candidate themselves sends a different type of signal. Examples of topics which could be used by a campaign to craft a more local focus include local (district or state) policies and industries, campaign event and logistical information, as well as personal details about the candidate herself. This distinction between national and local appeals, and particularly the language used to describe this, is influenced and supported by the campaigns that I interviewed. Given that this choice exists for campaigns, when should one type of appeal be better than the other?

As described initially in greater detail in Chapter 3, I argued that differences in district and campaign features shape which type of strategy is dominant for a

campaign. I divided campaigns into three potential types— favored, competitive, or unfavored— and discussed the main considerations of each.

The first type of candidate is one who is "favored"; her party identification is aligned with her district's partisanship, such as a Democrat running in a safely Democratic district. I suggest that this provides these campaigns with a motivation to focus more of their attention on more national appeals to seek to mobilize these partisan primary voters. In contrast, a candidate in a competitive district is one in which the partisan composition of voters is close to equal for both the Democratic and Republican parties. Here, both the primary and general elections can be consequential. Thus, in this case these candidates should moderate their messages more than the favorable candidates described previously by tweeting less about national topics and instead focusing more of their posts on local topics. The final type of candidate is an "unfavored" candidate, where her partisanship is not aligned with their district. An example of this is a Republican candidate running in a safely Democratic district. A candidate in this type of race is almost guaranteed to lose in the upcoming general election. I expect that candidates in this situation will behave more similarly to favored candidates than competitive candidates, and tweet more about national topics.

5.2.1 Importance of District Competitiveness

These incentives imply a non-monotonic relationship between district partisanship and campaign communication behavior. When a candidate is running in a district where she is favored or unfavored (i.e. not competitive), the campaign has an incentive to focus more on national topics than a candidate running in a competitive district. In particular, as a district moves away from a "perfectly" competitive district where there is no difference between the number of registered voters of the Democratic and Republican parties, they have a weakly greater incentive to focus on national topics in

their tweets rather than local ones. In other words, as the district's competitiveness decreases, campaigns are more likely to focus more of their Twitter posts on national messages than those in more competitive districts:

Conventional Wisdom Hypothesis: Campaigns in competitive districts will tweet the least about national topics, in contrast to campaigns in non-competitive districts who will tweet more about national topics.

In order to assess if campaigns are indeed behaving in this way, I complement the qualitative evidence from campaign interviews in 2018 and descriptive analysis of their Twitter interactions with a test of whether campaigns shape the content of their posts to appeal to voter preferences by leveraging redistricting as a natural experiment.

5.3 Do Politicians Respond to Changes in the Electorate?

How do we test for whether politicians use Twitter in line with these expectations that if their district is not competitive they will focus more on national topics in their tweets? I could provide descriptive evidence that these features shape campaign communication if they are speaking mainly to their voters through classification of posts, but the "correct" amount of tweets of one type of another is not clear ex ante. Another way to test how campaigns campaign is to leverage a redistricting as a natural experiment, when district boundaries are changed and campaigns may face new voters than their previous district.

When redistricting occurs, district boundaries are changed to reflect changes in population characteristics; this means that the new districts can contain both old and new voters for a given candidate. This can make it harder for campaigns to

know who is in their district, and therefore harder for them to predict voter prefer-ences. However, this is still something that a campaign must try to do. For example, Crespin found evidence that how Representatives voted in the House changed after a redistricting to better align with new voter preferences on issues of political promi-nence (2010) and Leveaux-Sharpe found that when a district became less Democratic, Representatives' roll-call votes became more conservative (2001). As such, the decen-nial redistricting that follows the U.S. Census has been used as a natural experiment or quasi-experiment in previous studies (for example, see Ansolabehere, Snyder and Stewart III 2000 or Crespin and Rohde 2010).

5.3.1 Redistricting Thought Experiment

To bridge the theoretical implications presented earlier and the dynamics of re-districting, the following walks through an example of different outcomes. Figure 5.4 shows three fictional districts labeled 1, 2, and 3. Red precincts represent Republi-can voters and blue districts represent Democratic voters. The darker the red (blue) color, the stronger the party's presence in the district as a proportion of registered voters in that precinct. Districts 1, 2, and 3 experience a redistricting, and the new boundaries are shown in the right panel, now labeled A, B, and C. Districts 3 and District C are identical— those boundaries did not change. However, candidates and voters originally in District 1 are now in either District A or District B and those orig-inally in District 2 are similarly in either District A or District B. The Conventional Wisdom Hypothesis predicts that a candidate's electoral environment will shape the communication choices they make. When expanded to a redistricting, where a can-didate may move into a district much more (or less) competitive than their previous, the change in the electoral outlook of a candidate will lead to a change in how they choose to communicate and the type of appeals which they will spend more of their tweets on.

The breakdown of district partisanship for the districts in Figure 5.4 are provided in Table 5.2 below. As can be seen, the partisanship breakdown remains the same for District 3 and District C, but candidates who were originally running in District 1 or District 2 face a more competitive race in the new districts A and B as the difference in registered voters for the Republican and Democratic parties, respectively, decreased.

Original District	**New District**
1: 35% Republican, 65% Democrat	A: 60% Republican, 40% Democrat
2: 85% Republican, 15% Democrat	B: 55% Republican, 45% Democrat
3: 70% Republican, 30% Democrat	C: 70% Republican, 30% Democrat

Table 5.2: Partisan composition of original and new districts from Figure 5.4.

Let us introduce a candidate running in this scenario— Candidate X. She is a Republican who was initially running in District 2 but after the redistricting she is now in District B, as illustrated by the stick figure in Figure 5.4. In her original district her party was very heavily favored, with about 85% of registered voters; her new district is much more competitive with only 55% of registered voters. Following the logic of the Conventional Wisdom Hypothesis, she now has more to lose by continuing to focus on national issues in her tweets. Instead, she will moderate her messages more than she did before the redistricting in order to try and appeal to some of the more moderate voters in her new district.
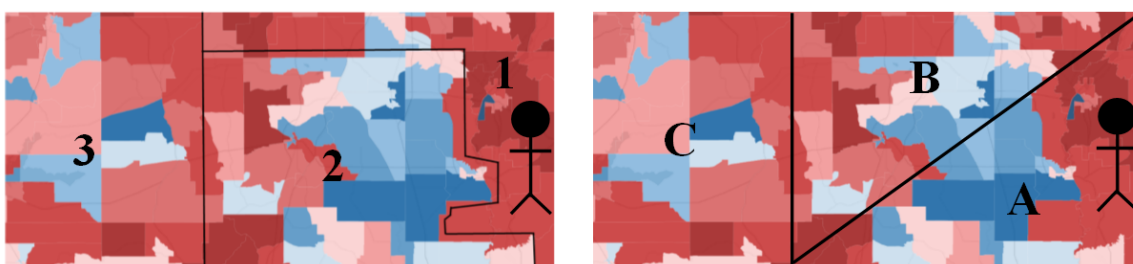
Figure 5.4: Three example districts before and after a redistricting event.

While redistricting can give researchers an exogenous shock which can be leveraged to test for a change in campaign behavior, the decennial redistricting suffers from some drawbacks. Campaigns know that it is coming— there has already been buzz

for months in the news around potential upcoming changes after the 2020 census about which states may lose and gain seats (Caputo, Shephard and Bland 2018), let alone internal district boundary shifts, as well as the importance of state legislative elections for determining which party will have the power to draw new districts. The more advanced notice that a campaign has about who their new constituents are, the less uncertainty they are likely to have (Yoshinaka and Murphy 2011). With additional time, the campaign has a better opportunity to learn about what its new voters want and to work to communicate why a certain candidate is the best for them. This can lead to changes in campaign behavior well before the release of the new maps, which severely restricts the utility of that type of approach for this project. However, a recent redistricting event in the state of Pennsylvania in February 2018 overcomes many of these concerns.

5.3.2 Design

The redistricting in Pennsylvania offers features unique from the regular decennial redistricting. In this case, the redistricting choices that ultimately went into effect were not made by the Pennsylvania General Assembly, but by the Pennsylvania Supreme Court. The new boundaries were also announced suddenly only one month before the candidate filing deadline, which means that candidates had to very quickly work to adapt to their new districts before the primary May 15, 2018, less than three months later.

The case of Pennsylvania's redistricting has garnered national attention as an example of partisan gerrymandering since the end of 2017. In the spring of 2018, the Pennsylvania Supreme Court redrew the map of congressional districts created by the Republican-majority General Assembly, which had been used since 2011. Under the old map, Republicans won the same 13 House seats in the general elections (out of 18 total districts) in 2012, 2014, and 2016, despite the fact that statewide Democratic

candidates won about half of the votes. In January 2018, the Court found that the current district boundaries were unconstitutional and an effort "aimed at achieving unfair partisan gain" (*League of Women Voters, et al. v. the Commonwealth of Pennsylvania, et al.*). New district boundaries were released on February 19, 2018.
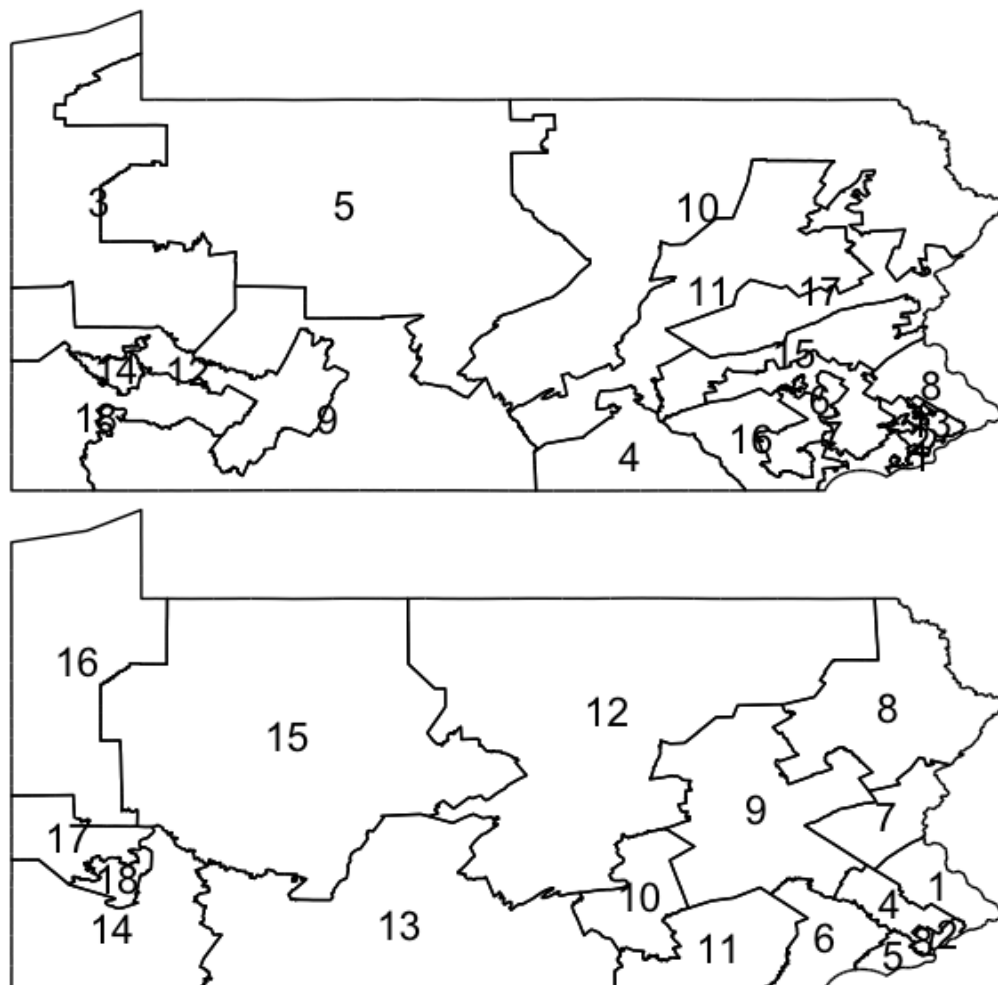
Figure 5.5: Pennsylvania congressional districts before and after redistricting.

It is these newly drawn districts which were used in both primary and general elections in Pennsylvania in 2018. The 2011 map created by the state legislature (top) and the 2018 map created by the Pennsylvania Supreme Court (bottom) can be seen in Figure 5.5. If you visually compare the two maps, changes in the district boundaries are clearly visible. From the perspective of each 2018 Pennsylvanian

congressional candidate, how did the competitiveness of their districts change from before and after the redistricting?

Data Collection

There are 113 candidates who were in the running for one of Pennsylvania's 18 congressional districts from December 2017. I compiled this list to place each candidate in a district before an dafter the redistricting using several sources, including records on the Pennsylvania Department of State's website (Candidate Database), candidate websites, Ballotpedia, and Wikipedia.[2] To account for potential differences between the official and campaign accounts of incumbents, I scraped the tweets of every active account related to each Representative separately.

In order to create a measure of district competition change, I used the full voter files from the Pennsylvania Department of State. This includes information on the approximately 8.5 million registered voters in the state, including their name, party identification, and congressional district. The voter files from before the redistricting in February 2018 are from the week of January 29, 2018.[3] The voter files from after the redistricting are from May 2019, and I subset the files to those voters whose information had not been edited since before the redistricting to exclude voters who might have moved in the 15 months prior.

Pennsylvania has closed primaries— only individuals registered with the Democratic or Republican parties can vote in their respective primaries (VotesPA). The remaining registered voters, approximately 13% on average in each district, cannot vote in the primary but can participate in the general election. To account for their potential impact, and described in more detail in the next section, I use two measures

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[2]More details on this process are included in the Appendix.

[3]Pennsylvania releases a new and updated voter file every week, and this was the closest prior to the redistricting that they were able to provide to me.

of district competition change— taking Other voters into account and considering only Democratic and Republican registered voters.[4]

In the case of the Pennsylvania redistricting, the new districts were drawn to better reflect the partisanship of their residents. If a candidate's district changes relative to their previous district in this way, leading to a substantive movement in electoral features, then the content of the campaign's posts should likewise change to reflect their new audience.

What did the Campaigns Say? Classifying Tweets

Candidates in Pennsylvania tweeted 73,433 times— 41,441 times between November 9, 2016 (the day after the 2016 election) and the 2018 midterms on November 6, 2018.[5] In order to test differences and changes both between candidates and for a single candidate over the course of their campaign, I classified every tweet that the candidates posted using the supervised topic model as described in Chapter 4.[6] In a supervised model, a random sample of previously coded texts (here, tweets that I hand-coded) are used to provide additional information to the model when the non-hand-coded texts are classified.

Each tweet was classified as one of two categories: national and local. This choice is made based on the previous discussion of the two types of appeals campaigns can choose from, and supported in my interviews as language used by candidates and their staff. Did campaigns who faced a change in district partisanship change

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[4]The residency requirements for a congressional candidate in Pennsylvania state that they have to live in the state (Pennsylvania Department of State)— not necessarily in the district where they are running. It is possible that in some instances candidates chose to move into a new district which was a "better" fit for them (meaning that the change in partisanship either benefited them or was not as harmful as a different district might have been). However, many candidates still ran in new districts where they faced a double-digit decrease in their party's registered voters.

[5]I used a subset of all of these tweets to train the supervised topic model and classified all of them. The results presented below are robust to only using tweets during the 2018 campaigns in the training set.

[6]Though many previous studies of congressional Twitter usage utilized handcoding alone (see Glassman, Straus and Shogan 2009; 2013, Russell 2018), this is not a feasible or effective strategy for this project due to the quantity of tweets that I have.

the proportion of their tweets about national topics after a change in audience? If the campaigns are primarily speaking to voters on Twitter, then the Conventional Wisdom Hypothesis implies that we should find differences across candidates in this way.

I used the 7,343 hand-coded tweets to train a supervised topic model to classify the remaining approximately 65,000 tweets by Pennsylvanian candidates during the 2018 campaign cycle. Here, I use the topic model to find patterns in the tweet data— to associate certain words more heavily with national or local tweets, and then make a prediction about which category each individual tweet is most likely to fall into. Greater details about the steps in the process are outlined in Chapter 4.
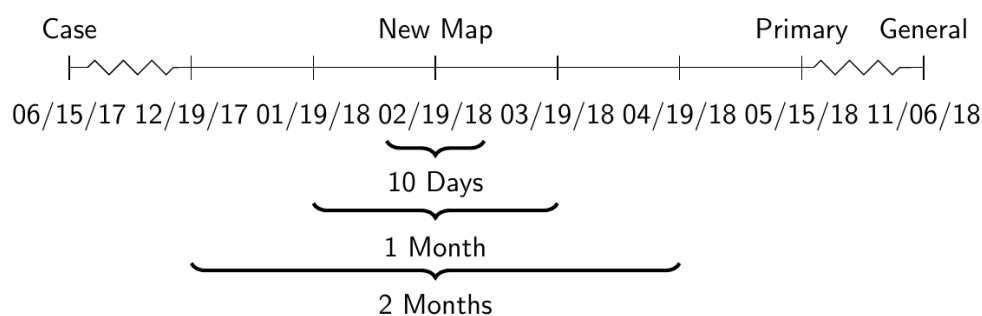
Figure 5.6: Pennsylvania timeline showing the time periods within which tweet proportions were aggregated.

Every tweet by every candidate was classified into each category— either national or local. Within a given time period (10 days, 1 month, and 2 months before and after the new map was released February 19, 2018), I calculated what proportion of a candidate's tweets were classified into each category.[7] These time bands are shown around the date of the release of the new map in Figure 5.6.

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[7]Scatterplots showing the relationship between district competition and the proportion of "National" tweets during each time frame, before and after the redistricting, are provided in the Appendix.

Calculating Levels of District Partisanship

In order to apply the thought experiment to real-world elections, I needed to calculate the proportion of competition change experienced by a given candidate. For this, I need a measure of the proportion of registered voters of each party in the district— both Democrats and Republicans, but also to consider the possible influence of "Other" voters (which includes all other registered voters, including Libertarians, no party affiliation, and Independents). This can be done in two different ways for all districts before and after a redistricting. The first takes the difference in the registered voters in a district (pre- and post-redistricting) as a proportion of all registered voters in the district, including those registered for a party different than Republicans or Democrats.[8] The second instead takes the difference in registered voters in the district as a proportion in only the Republican or Democratic party.[9]

If a candidate's new district is more competitive than her old district, then we should expect campaigns to decrease their focus on national topics relative to their behavior prior to the redistricting. In contrast, in a district where the new district is less competitive than the old district, the campaign will increase their proportion of national tweets relative to their levels before they experienced the change in district partisanship.

5.3.3 Results

I classified the tweets in order to assess if campaigns shaped their tweet content to appeal to voter preferences. To do so, I leverage the exogenous shock of the Pennsylvania redistricting through a difference-in-differences research design to test the Conventional Wisdom Hypothesis which predicts that when campaigns experience

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[8]$VoterChange_i = \left| \left(\dfrac{D_{post} - R_{post}}{D_{post} + R_{post} + O_{post}} \right) \right| - \left| \left(\dfrac{D_{pre} - R_{pre}}{D_{pre} + R_{pre} + O_{pre}} \right) \right|$

[9]$VoterChange_i = \left| \left(\dfrac{D_{post} - R_{post}}{D_{post} + R_{post}} \right) \right| - \left| \left(\dfrac{D_{pre} - R_{pre}}{D_{pre} + R_{pre}} \right) \right|$

a change in district competition, this will lead to changes in their tweet content to better appeal to voters. Though the entire state was redistricted, the new boundaries only changed the district composition of some candidates, and at varying levels. Thus, the treatment here is not the release of the new map or the court filing date, but instead how much a given candidate's district partisan composition, and therefore competitiveness, changed from before and after February 19, 2018.

However, no matter what I do, I cannot find any evidence that supports the conventional wisdom that congressional campaigns use Twitter to communicate directly to their voters. I sought to gain traction here— by measuring district change in competition in multiple ways, assessing Twitter behavior in different time bands before and after the release of the new map, as well as taking into account campaign features which may shape their effectiveness (such as incumbency status or those who raised no funds). Even when I ran models using many different combinations of these features, I was not able to find any evidence supporting the findings from the literature and the Conventional Wisdom Hypothesis, even though this is statistically improbable, as I show below.

When the composition of a district's voters changes partway through a campaign cycle, previous theory predicts that a candidate's social media and communication strategies will also change in response to a new audience if they are using their Twitter accounts to communicate directly to potential voters. If their new district is less competitive than their old one, their tweets should become weakly more national-focused as they moved to either a more favored or a more unfavored electoral environment (and vice-versa). If the tweet content does not change, even when they experience a change in district partisanship, this suggests that some other motivation is driving their behavior on the platform.

The main results presented are restricted to challengers and the campaign accounts of incumbents running for re-election. I separate the campaign and congress Twitter

accounts for those already in office because substantively we may expect different types of content based on different rules shaping the account's content. On Twitter today, many Representatives have both an official Twitter account as a member of Congress as well as a campaign account. Each serves a different purpose, is maintained by different people,[10] and is likely to contain different content.[11] The official accounts are regulated in a similar way to the politicians' websites— for example, they must include their title (such as congressman or congresswoman) in the name on the account (Straus and Glassman 2016). Therefore, we can expect both practical and theoretical differences in the strategic use and content of these two types of accounts. For the purposes of this project I focus on the campaign accounts, as they are most similar to those maintained by non-incumbents.

The goal is to determine whether the content of candidate social media posts changes after redistricting if they experienced a change in district competitiveness. The main models that I estimate are of the form of Equation 5.1. A given candidate is "treated", $CompChange_i$, if she experienced a change in her district voter composition, specifically a change in competitiveness. From the above theoretical implications, a candidate's tweet content should change if the competitiveness of their race changes, in order to best appeal to the new partisan make up of their voters.

I utilize the two measures of change of district competitiveness described previously, either considering only Democratic and Republican registered voters or incorporating those registered in other political parties, in several further ways. The first set of models use a measure of the continuous change in competition, as the difference between the new and old districts. This ranges from -44% to 23%. The second set of models sets several distinct and discrete thresholds of the continuous change

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[10]Staff in the Representative's office, whose time is paid for by funds appropriated to the office (House resources), can only post on the official account. In contrast, the campaign account is not regulated in this way, though posts cannot be made by those who are paid for by House resources (Straus and Glassman 2016).

[11]Posts related to the campaign cannot be shared on the official account.

in district composition, above (or below) which a candidate is considered "treated". These thresholds are: if the difference is 0%, 5%, 10%, and 15% or higher (or 0%, -5%, -10%, and -15% or lower).[12]

The outcome $PropNat_{i,t}$ is the content of the social media posts made by each candidate in each time period before ($t = 0$) and after ($t = 1$) the redistricting event; I use the proportion of a candidate's tweets in the time period before and after the new map was drawn, respectively, which were classified as national. I consider the proportions here rather than the number of tweets because I think that the tweet-generating process is related to, but still distinct from, the content-generating process.

This approach allows me to test the effect that the change in district competitiveness has on the content of congressional candidate's tweets. The coefficient of interest in Equation 5.1 is δ, the interaction between whether the candidate is treated and time. Time is d_t; it has a value of 0 before the new map was released, and 1 afterwards. I test three different time periods— 10 days, 1 month, and 2 months before and after the new map's release. Standard errors are clustered at the new district level. The models are of the form of Equation 5.1, and test the Conventional Wisdom Hypothesis:

$$PropNat_{i,t} = \alpha_i + \gamma CompChange_i + \lambda d_t + \delta(CompChange_i * d_t) + \epsilon_{i,t} \quad (5.1)$$

I estimate additional specifications of the models which control for whether the candidate is an incumbent. The measure of incumbency is an indicator with a value of 1 if the candidate was elected in 2016,[13] and 0 otherwise. This measure is included to account for any differences in Twitter behavior that may exist between the cam-

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[12]Hirano and Snyder (2014) set a similar threshold when they classified competitive districts "if the difference between the moving average of the Democratic and Republican vote shares [9 year moving average] is smaller than 15 percentage points and safe if this difference is greater than 15 percentage points".

[13]This also includes Conor Lamb, who was elected in a special election to represent PA-18 in March 2018 and ran for re-election in November 2018 in PA-17.

paign accounts of incumbents, who are likely to have greater political expertise, and challengers.

For each combination of features outlined above for campaign Twitter accounts, I find no evidence that they changed their tweet content after experiencing a change in district competition and partisanship. The results for models using thresholds of district competition change are shown in Figure 5.7 and those with a continuous change in district competitiveness are shown in Figure 5.8. Across these different combinations of model specification features, I ran 108 models. For both, the difference-in-differences estimate, δ from Equation 5.1, is plotted along with 95% confidence intervals and the dependent variable is the proportion of national tweets.
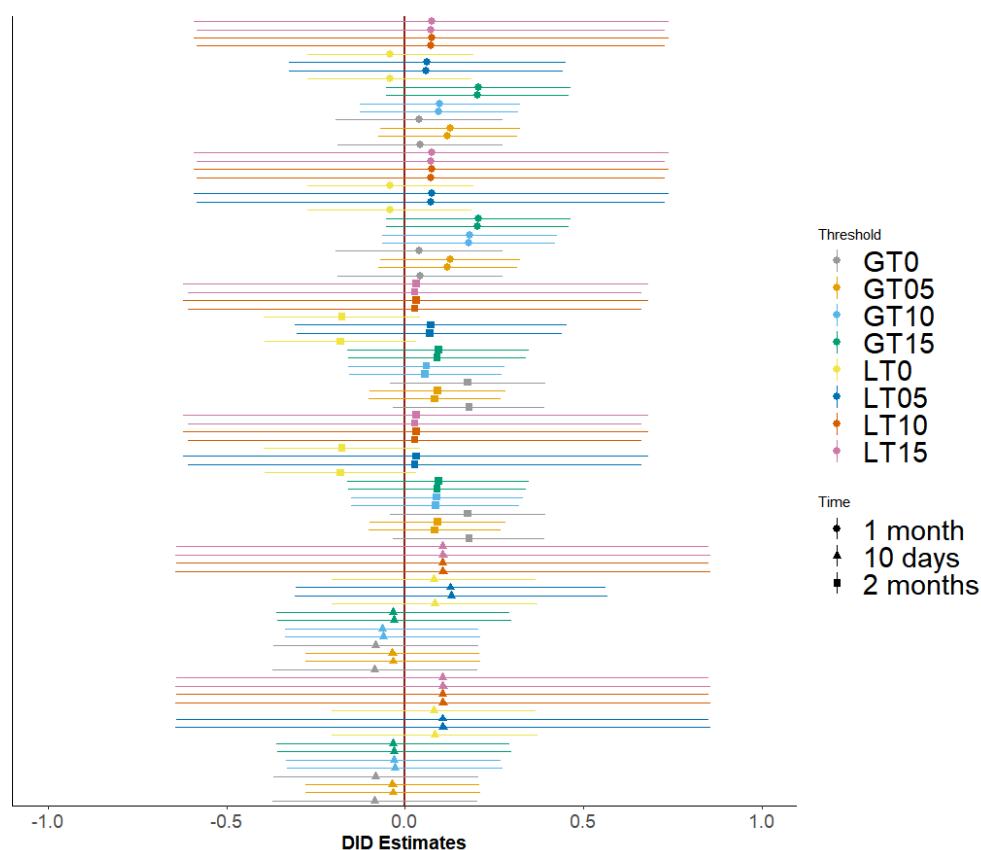
Figure 5.7: Estimates of the difference-in-difference coefficients from models including all active campaign accounts with the treatment measured as a discrete level of change in district competitiveness.

Figure 5.7 contains the results from all models which were limited to campaign accounts and used a discrete treatment threshold— whether the change in competition from 2016 to 2018 was 0%, 5%, 10%, or 15% or greater, or less than 0%, -5%, -10%, or -15%. Each of the eight is labeled using a different color. As can be seen, all coefficient estimates of the difference-in-differences effect are not significant— they do not provide evidence that the campaigns changed the national content of their tweets following a change of district competitiveness, even those who experienced the highest levels of change. This is the case for all time periods (10 days, 1 month, and 2 months) around the release of the new map, as shown by different symbols in Figure 5.7, for both calculations of district change (with and without Other registered voters), and whether the control for incumbency status is included or not.
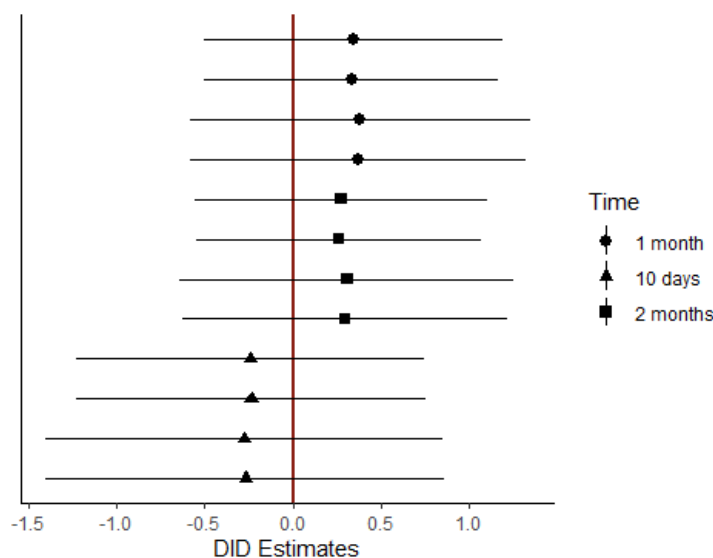
Figure 5.8: Estimates of the difference-in-difference coefficients from models including all active campaign accounts with the treatment measured as the continuous change in district competitiveness.

Figure 5.8 shows the results from the models of campaign accounts which used a continuous measure of district competition change as the treatment. All of the difference-in-differences estimates are not statistically significant; as before, they do not provide evidence that the campaigns changed the partisan content of their tweets

following a change of district competitiveness, even those who experienced the highest levels of change. This is the case across all model specifications, even when controlling for incumbency status, across all time periods (as shown by different symbols), and both calculations of district competition change.

I estimate further specifications using both threshold and continuous change in district competition to account for features of campaign quality or behavior that may impact these results, and these results are in the online Appendix. These were models including all Twitter accounts (campaign and official) and excluding those who most rarely tweeted or who raised little or no money. Campaigns who tweeted only a handful of times were more likely to have extremely high or low proportions of national tweets, in a way that is substantively different than campaigns who tweeted more frequently.[14] I ran models where they were excluded in case this was impacting the results. Campaigns who raised less than $10,000 during their campaign (FEC) suggested a less serious campaign or a lack of quality. I ran models where these campaigns were excluded, as we may expect these campaigns to be those less likely or able to respond to a redistricting. These specifications did not change my results.

Across the 108 estimates from the main difference-in-differences specifications, as well as the 276 in the Appendix (for a total of 384 unique combinations of model features), I do not find any evidence that the campaigns changed their Twitter behavior after a change in voter composition and district partisanship following the 2018 redistricting. These results are statistically improbable. This suggests that congressional campaigns are not using Twitter to communicate directly to voters, as suggested in previous work, but rather for some other purpose. I now explore alternative explanations to why campaigns use Twitter, and the implications for American democracy

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[14]For the 10 day time period this excludes the 28 candidates who only tweeted 4 times or less. For the 1 month time period this excludes the same 28 candidates who tweeted 16 times or less. For the 2 month time period this excludes the 22 candidates who tweeted 23 times or less. Plots showing the distribution of candidate tweet frequency, including the cutoff of least frequent tweeters, in each of the three time periods are also provided.

that the answer may suggest. If not to provide information directly to voters, why do congressional campaigns use Twitter?

5.4 Conclusions

This chapter provides evidence that the initial perceptions of Twitter as a direct communication tool between politicians and voters need to be re-evaluated. Using interviews with congressional candidates and their staff, descriptive evidence of candidate mention patterns, as well as content analysis of tweet content, I find little that supports the idea that campaigns in Pennsylvania shifted their communication strategies following the redistricting to cater to their new voters; they did not directly tweet to their voters or change their Twitter behavior in the way that one would expect them to if they were targeting a changing electorate following the drawing of new districts.

By leveraging the unusual redistricting that occurred in Pennsylvania in February of 2018, I was able to test what campaigns did without creating an arbitrary "correct" threshold of content ex ante. Rather, I was able to test for changes within candidates and campaigns who experienced only the sudden shock of a change in their district boundaries (and/or the magnitude of the shock) less than three months before their primary elections that May. Despite this, when faced with a change in the partisanship of the voters they were ostensibly working to communicate to, they did not alter their tweet content.

This gives us reason to question the assumption that congressional campaigns use Twitter to primarily speak to voters. That it does not, as was hoped, enhance democratic features of American politics by narrowing the distance between elected officials and the voters who put them into office. However, the potential benefits

of the platform to a campaign, as well as its relative cheapness and ease of use, do suggest that they may do so for strategic reasons or considerations.

If what the literature has suggested so far, that campaigns tweet to reach their constituents, is not actually true, then the next step is to determine the correct answer— why, and for whom, do congressional candidates use Twitter? There are at least three potential explanations for the non-significant results presented above: 1) that campaigns are not purposefully speaking to a specific audience when they tweet, 2) that they are targeting voters but are ineffective at doing so, or 3) that they are communicating to someone else.

No One is the Focus? The first possibility is that I did not find evidence that campaigns target their voters on Twitter because not only do they not target their voters on the platform, they do not target anybody. This is not likely. As shown in Chapter 1, over the course of the 2018 midterms campaigns tweeted thousands of times each day, and from Chapter 4 we know that overall, congressional campaigns tweeted over 2 million times as of November 2018. Campaigns are incredibly busy at all times and wary of future punishment (and Twitter is by definition a public platform)— if they did not perceive to (even potentially) benefit from using Twitter, they would spend their valuable time and efforts elsewhere.

Ineffective at Communicating to Voters? Another possible explanation for the results above is that campaigns *are* attempting to reach voters on Twitter, are trying to provide information to them and be good representatives, but are completely ineffective at the task. This could be the case for some campaigns, particularly non-incumbents who have low political experience and struggle to craft and maintain a consistent narrative for the campaign. However, it is unlikely for incumbents who have been elected at least one time previously and have staff and expertise to be unable to control their overall communications message if they chose. It is for this reason

that in the model specifications outlined previously I controlled for the candidate's incumbency status, as well as excluded those candidates who did not raise any (or barely any) money to support their campaign or rarely tweeted. Doing so did not change the conclusions suggested by the results.

Communicating to Political Elites? A third possibility is that campaigns are crafting their Twitter strategy to appeal to a certain audience, but that audience is not voters in their district. This is in line with qualitative evidence from my interviews, as presented in greater detail in Chapter 2, where campaigns believe that their tweets are seen by non-voters such as activists and interest groups, journalists, other campaigns, and voters across the country. Another question that I asked as part of the interviews is whether the campaigns believe that they are capable of changing voters' opinions through their social media activities— every individual that I spoke to, whether a candidate or a staff member, laughed at that possibility.

Therefore, I discount the likelihood of the first two alternative explanations, that congressional campaigns target no one in their tweets or that they are ineffective at tweeting directly to and for their voters, as well as the conventional wisdom that they do so, and are effective at it. Instead, I suggest that congressional campaigns use their Twitter accounts to attempt to communicate to other political elites, both locally and nationally. If this is the case, then Twitter is not a tool which enhances American democracy by strengthening the connection between voters and their representatives. Instead, it is a tool of elite political discourse. I tackle this possibility in the next chapter, where I test the second part of the theory presented in Chapter 3— whether campaigns engage with, and gain off-line benefits from, political elites, with a focus on activists and interest groups.

Chapter 6 Money Please! Testing the Interest Group Connection

Candidates use these social media tools in different ways and for many purposes. While some use them primarily to organize campaign functions, others link explicitly to policy or political events. Such events thrust issues into the spotlight and offer an opportunity for candidates to signal their preferences on these topics to multiple audiences. In this chapter, I test whether campaigns communicate directly to a specific audience— organized interests (a type of political elite) — and receive offline, "real world" benefits from this behavior. I do so by assessing whether campaigns receive changes in the amount of financial contributions from these organizations when they tweet their support or opposition to one of three issue areas: agriculture, labor, or LGBTQ topics. Though not necessarily as polarizing as other topics (e.g. immigration or health care), these are issues where relevant interests look for public statements from politicians to know who are most likely to be allies and if they remain so.

Voters may find more than one policy area important (though some issue areas are more salient to them than others), but the interest groups most relevant to the topic focus on a single issue or policy area, such as the environment, business, or women's health. Campaigns work to signal their beliefs, stances, and promises to relevant industries and organized interests who have specific policy goals and political preferences. These interested organizations are groups which are more likely to notice and/or seek out a candidate's campaign messages, such as tweets, on political topics or events than the average voter.

The support of such interest groups can be beneficial for candidates; they may help the candidate to gain greater levels of electoral support by spreading information and mobilizing their members, but can also provide financial donations to the campaign. Research shows that interest groups want access to all candidates regardless of party or issue ownership (Brunell 2005), but many also have partisan goals and objectives and will donate and support parties and candidates accordingly (Stratmann 1991; 1998). These interest group goals provide an opportunity for candidates to signal that they have beliefs on certain issues for these groups to see.

This chapter tests whether it is realistic for a candidate to believe that they will gain from their tweets, specifically whether they will receive more campaign contributions from interested groups after they tweet on the issues most relevant to the organizations. Overall, I find that congressional candidates and interest groups follow each other and interact on Twitter through their mentions and replies, and in the aggregate candidates who tweet on a topic are more likely to receive contributions from groups and individuals in that issue area than those who do not and the contributions received is higher for those who tweet more, though I find minimal and inconsistent evidence that there is an immediate causal effect of tweeting on a topic.

This chapter draws on insights from the interviews that I conducted with congressional candidates, as outlined in Chapter 2, that they perceive their main audiences on Twitter to not be voters in their districts, but rather political elites. Despite their differences, the candidates and staff that I spoke to think (and hope) that interest groups are observing their campaigns on Twitter (though they had varying beliefs about the reality of this occurring, or how frequently, mainly based on how much of a perceived serious contender they were in their district). When I asked who they perceived to be the individuals or groups who are most likely to see their posts, several answered interest groups and activists (usually in reference to issue areas that are im-

portant to his or her district, such as health care or immigration). They particularly referenced those who they perceive as allies engaging in this type of behavior.

In this way, this chapter tests the second half of the theory presented in Chapter 3— why and how do congressional campaigns seek the support of political elites, such as interest groups, and what features of candidates do interest groups consider when choosing who to support. The rest of the chapter proceeds as follows: I start with a descriptive analysis of Twitter behavior by and between candidates and interest groups (including following patterns and mentions of each other) to assess if it is a strategy recognized by both sides. In the final part of the analysis, I test whether candidate tweet behavior leads to "real world" outcomes which are beneficial to their campaign— contributions, both in the aggregate and diving deeper into the temporal relationship between tweets and contributions. I end with conclusions and next steps looking forward.

Previous work focuses on goals of interest groups— here, I consider the interactions between organized interests and politicians from the perspective of the candidate for Congress rather than the interest group. By giving money, interest groups signal back and reinforce their message campaigns after they tweet that they support the candidate and want them to maintain their public stance(s). I am looking for evidence of three things: 1) using Twitter to communicate directly to interest groups is a recognized strategy by congressional campaigns, 2) it is a strategy also recognized by the interest groups themselves, and 3) whether these behaviors lead to offline (or "real world") benefits for the campaigns. I outline my theoretical expectations for these behaviors in the following hypotheses:

Hypothesis 1 *Candidates who tweet about an issue area are more likely to receive more contributions from groups in that area than candidates who do not.*

Hypothesis 2 *Candidates who tweet more about an issue area are more likely to receive more contributions from groups in that area than those who do not.*

I limit my analysis to three issue areas (labor and business, agriculture, and LGBTQ issues). This is both an effort to carve out an accessible chunk of campaign and interest group activity, but is also an attempt to capture a variety of types of interest groups. Labor groups are seen as being particularly invested in observing and engaging with Congress (offline and online). Many of the previous studies of money in Congress focus on issues and groups which fall into this category (see Brunell 2005, Grier and Munger 1991, Wawro 2001). They are included as a best case for the possibility that campaigns strategically use Twitter to communicate directly to interest groups, but are not necessarily representative of the behavior of other groups. Therefore, agriculture is included to represent a more corporate- and business-focused interest group category (see Stratmann 1991; 1998). It is also less politicized and prominent in national discussions compared to other issue areas. LGBTQ groups are included as an example of citizens' groups and as a contrast to labor and agriculture. Though compared to the other two categories these groups are more likely to be 501(c)(3)'s and are therefore less able to engage in political campaigns, they work within a culturally polarizing issue area.

However, just because campaigns believe that interest groups may be observing their posts on Twitter, as suggested in the interviews that I conducted, does not mean that this knowledge shapes their behavior. In the next section, I turn to descriptive analyses of congressional campaign and interest group behavior online— how frequently they follow and mention each other on Twitter.

6.1 Is this a Strategy Recognized by Both Sides?

As suggested by campaigns in my interviews, they perceive interest groups to be present on Twitter and observing their posts. But, are interest groups actually present on the platform and interacting with the campaigns online? I turn to more

rigorous analysis to assess if this is the case, and whether these groups engage with congressional campaigns on Twitter. I first seek evidence that candidates and interest groups both recognize Twitter as a space where they can provide information to each other by examining 1) if they follow each other on Twitter (a low stakes and cheap signal of attention) and 2) if they directly interact with each other on the platform through their mentions and replies.

To be able to do so, I scraped Twitter data by and about congressional campaigns and interest groups. In 2018, 2,797 candidates ran for office and 2,138 candidates (with 2,434 unique accounts) had an active Twitter account; I scraped all tweets that they posted, as well as who their "friends" (those accounts that they chose to follow) were. I compiled lists of national interest groups in agriculture, labor, and LGBTQ using several sources. In total this includes 545 federal groups— 273 on labor, 122 on agriculture, and 150 on LGBTQ. I go into more detail about how I compiled these lists of groups in the Appendix, and will describe the lists more in later sections. For each of these groups, I collected their Twitter handles and their Twitter data. As with the campaign accounts, I scraped all posts and friends of the interest groups on the platform. It is this data that I describe and utilize below.

6.1.1 Do Interest Groups & Congressional Campaigns Follow Each Other?

As a first test of whether Twitter is a space which both candidates and interest groups recognize as a place where they can communicate and share information, I assess if they follow each other on Twitter. This is one of the lowest effort ways to signal to another on the platform that you are interested in what they post. Doing so is easy and does not take much time, and a user is notified if they are followed. Unless a Twitter account is protected (which is unusual, particularly for the public-facing accounts of politicians running for office and interest groups), their tweets are not

limited to their followers, but by following a specific account you are more likely to see its posts. I scraped all friends of the 2,434 candidate accounts who ran in 2018 and were active on Twitter. Of these, 2,390 followed at least one account (interest group or otherwise) when I scraped. The candidates follow anywhere from a handful to thousands of other Twitter users. Of those, I subset the accounts of federal, non-profit interest groups included included in my list of groups and aggregated by candidate.

In total, and as shown in Table 6.1, 1,299 candidates followed at least one labor or business group (417 incumbents and 882 challengers), 569 followed at least one agricultural group (201 incumbents and 368 challengers), and 1,042 followed at least one LGBTQ organization (318 incumbents and 724 challengers). For both incumbents and challengers, the type of group that they followed most frequently was focused in labor, followed by agriculture, and then LGBTQ; a little over half of all candidates followed at least one labor organization, less than a quarter followed an agricultural organization, and almost half followed an LGBTQ group.

	Number Followed	Labor Groups	Agriculture Groups	LGBTQ Groups
Incumbents	1 or More Groups	417	201	318
	Median	3	1	2
	Average	8	2	4
	Maximum	78	11	35
Challengers	1 or More Groups	882	368	724
	Median	3	1	2
	Average	7	2	3
	Maximum	48	15	35
All Candidates	1 or More Groups	1,299	569	1,042

Table 6.1: Number of congressional candidates who followed at least one interest group, by issue area.

We can break this down even more. For all three issue areas, half of all candidates who follow at least one interest group in a given area follow three or less. The most frequently followed type of group is a labor group, with the average candidate

following 8 of them, compared to 2 agriculture groups and 4 LGBTQ organizations. For all three, there are several candidates and campaigns who follow many more groups than the average. This is particularly true for labor and business groups; the highest number of groups followed by a single candidate is 78; this was Representative James Langevin (D-RI, 2). The next highest candidate followers of labor interest groups are Representatives Jackie Speier (D-CA, 14) with 59, Mark Pocan (D-WI, 2) with 58, and Judy Chu (D-CA, 27) with 53. The non-incumbent who followed the most labor groups, 48, was Carol Hafner (D-AK).

Though not as high of numbers as those candidates who followed labor groups, the congressional candidate who followed the most agricultural interest groups is Danny Kushmer (Republican candidate for FL-15) who followed 15, followed by Sarah Lloyd (D-WI, 6) who followed 14, and Representative Dwight Evans (D-PA, 2) who followed 11. Turning to LGBTQ organizations, the candidate who followed the most of these groups is Representative Barbara Lee (D-CA, 13) and J.D. Scholten (Democratic candidate for IA-4) who each follow 35, Alexandra Chandler (Democratic candidate MA-3) who follows 26, and then Representative Judy Chu (D-CA, 27) who follows 25. Though there is substantial variation between these three types of interest groups, following them is a decision that many candidates and representatives take.

Though the number of all incumbents (435) is much lower than all challenges (just under 2,000), and a much larger proportion of incumbents follow every type of group than challengers, it is notable that many challengers still chose to follow these interest groups before they were elected or lost in a primary or general election in 2018. As shown in Table 6.1, almost half of all challengers followed a labor group, about 20% followed an agricultural group, and about 40% followed an LGBTQ organization. The ordering of the type of group most likely to be followed by a congressional candidate is the same for both incumbents and challengers— labor, then LGBTQ, then agriculture.

	Labor Groups	Agriculture Groups	LGBTQ Groups
Total Number of Groups	273	122	151
Number of Groups who Follow Candidates (Total)	209	70	102
Number of Groups who Follow Candidates (Incumbents)	171	50	82
Number of Groups who Follow Candidates (Challengers)	197	51	73
Median Candidates Followed (Total)	17	7	6
Avg Candidates Followed (Total)	50	24	25
Maximum Candidates Followed (Total)	479	328	275

Table 6.2: Number of interest groups who followed at least one congressional candidate, by issue area.

It is not only that candidates follow interest groups; interest groups also follow them back, as can be seen in Table 6.2. A majority of groups in all three issue areas follow at least one candidate (incumbent or challenger)— 77% of labor groups, 57% of agriculture groups, and 68% of LGBTQ groups. The median number of candidates followed by a labor group is the highest at 17, compared to 7 for agriculture groups and 6 for LGBTQ organizations. Several follow many more than this, however. The National Federation of Independent Business (NFIB) is the labor group that follows the most candidates (479 in total, 154 incumbents and 325 challengers, the most of any issue area), followed by the National Marine Manufacturers Association (NMMA) (419 in total, 10 incumbents and 419 challengers) and the National Association of Manufacturers (NAM) (396 in total, 101 incumbents and 295 challengers).

Though substantially less than labor groups, agricultural and LGBTQ interest groups still chose to follow congressional candidates in large numbers. Turning to agriculture groups, World Resources followed the most candidates (328 in total, 7 incumbents and 321 challengers) and Farm Credit followed the second most (161 in total, 8 incumbents and 153 challengers). For LGBTQ organizations, the Human

Rights Campaign followed 275 campaigns (117 incumbents and 158 challengers) and the NoH8 Campaign followed 227 (68 incumbents and 159 challengers).

I have found evidence that interest groups are present on Twitter and commonly made the decision to follow congressional campaigns and members of Congress, and that the politicians similarly follow the organizations. We can further see, from extreme examples and the overall breakdown in Table 6.2, that who interest groups chose to follow is not driven solely by organizations following incumbents; there are groups in all three categories who follow only challengers and who follow a mixture of the two types of congressional candidate. It is possible that interest groups follow these challengers to learn about what they stand for, and potentially to predict how they would behave if elected. In the following section, I assess if campaigns and interest groups use Twitter to communicate in a more dynamic and important way— if they interact with each other on the platform by mentioning each other in their posts.

6.1.2 Do They Interact? Mentions

I now turn to assess to what extent congressional candidates and interest groups interact on Twitter through their mentions. A mention is when one user references another user by Twitter handle in a post; the referenced user is notified, and the tweet is magnified to followers of both accounts. Choosing to reference another account by handle is a higher effort, more public way to directly engage with another user on Twitter than following them. To be able to assess mention behavior, I classified all users mentioned (denoted by an @ and then their handle) in all tweets by 2018 congressional campaigns and all of the 545 federal, non-profit interest groups in my data. To be able to determine how many tweets were a mention or reply to each other (between campaigns and interest groups, or vice-versa), I subset the universe of possible tweets from both to those that included a handle of the other type of actors,

and then assess how many unique interest groups were mentioned by candidates, and vice-versa.

	Group's Issue	Number of Tweets	Number of Groups
Incumbents Mentioned	Labor	3,764	138
	Agriculture	9,108	36
	LGBTQ	1,060	36
Challengers Mentioned	Labor	5,457	133
	Agriculture	758	38
	LGBTQ	2,168	48
Total Mentioned	Labor	9,221	163
	Agriculture	9,866	50
	LGBTQ	3,228	54

Table 6.3: Frequency that candidates interact with interest groups on Twitter, by issue area.

First, I consider the frequency with which candidates mentioned interest groups on Twitter, as shown in Table 6.3. Campaigns mentioned labor and agriculture groups the most in number of tweets overall, followed by LGBTQ organizations. Here there were more differences between incumbents and challengers— incumbents tweeted to agriculture groups more than twice as frequently as they did labor groups and four times more than LGBTQ groups, while challengers tweeted mostly to labor groups, which was more than twice as much as they did to LGBTQ groups and seven times more than to agriculture groups.

One potential concern about the overall number of mentions and replies is that it is may be driven by a small number of highly engaged groups on Twitter with congressional candidates. However, if we turn to the breakdown of unique candidates engaging in this behavior in Table 6.3, we see that this is not the case. Congressional candidates' Twitter accounts interacted with 163 unique labor groups (out of 273), 50 agricultural groups (out of 122), and 54 LGBTQ organizations (out of 150). These are lower counts than the number of interest groups from each issue area who follow or are followed by campaigns on Twitter, but directly engaging with another user on

the platform by replying or mentioning them in your posts is a more time intensive and powerful signal of observation and interaction than simply choosing to follow an account.

		Number of Tweets	Number of Candidates
Labor Groups Mentioned	Incumbents	3,462	415
	Challengers	577	117
	Total	3,462	468
Agriculture Groups Mentioned	Incumbents	5,495	397
	Challengers	637	122
	Total	5,495	466
LGBTQ Groups Mentioned	Incumbents	1,876	299
	Challengers	300	71
	Total	1,876	335

Table 6.4: Frequency that interest groups interact with candidates on Twitter, by issue area.

Likewise, interest groups frequently mentioned congressional campaigns on Twitter. As shown in Table 6.4, labor groups mentioned or replied to campaigns a total of 3,462 times (all mentioned at least one incumbent and 577 also mentioned a challenger), agricultural groups did so 5,495 times (all tweets mentioned at least one incumbent and 637 also mentioned a challenger), and LGBTQ groups mentioned a candidate 1,876 times (all mentioned at least one incumbent and another 300 also mentioned a challenger).

Of those tweets, and the 2,434 total candidate accounts whose information I was able to scrape, labor groups mentioned 468 unique congressional candidates (415 incumbents and 117 challengers), agricultural groups mentioned 466 candidates (397 incumbents and 122 challengers), and LGBTQ groups mentioned 335 candidates (299 incumbents and 71 challengers). Though in each issue area the interest groups mentioned incumbents many more times than challengers, and did so to a larger number of candidates, the groups still chose to mention over 100 challengers hundreds of times. Overall, labor and agriculture groups interacted with about one fifth of all congres-

sional candidates on Twitter and LGBTQ organizations interacted with about one seventh of all campaigns. Therefore, I have found evidence that not only do campaigns and interest groups engage in the relatively low effort behavior of following each other on Twitter, but additionally interact through mentioning each other in their tweets.

In the analysis up to this point, I have provided evidence that both congressional campaigns and interest groups recognize Twitter as a space for communication, as seen through their decisions to follow and mention each other. For the next section, I move on to a bigger question— given what I have already found, do campaigns receive "real life" benefits from their behavior on Twitter from relevant interest groups for these issue areas?

6.2 Do Campaigns Receive Offline Benefits from their Behavior?

Though both campaigns and interest groups choose to follow and mention each other on Twitter, and doing so does take some of their valuable and limited time, this is not a sufficient explanation for *why* candidates for congress make as much use of Twitter as they do— it does not suggest enough benefits to justify their extensive use of the tool. If an interest group mentions you in a tweet or follows your account that can be an informative signal that they are observing you and your posts, but it is not clear that any other benefits (such as campaign contributions, an endorsement, or mobilization) may be realized, though it is those benefits which are most useful and desired by the campaign.

Overall, I am interested in how, whether, and when tweet behavior by candidates for Congress leads to real-world implications for their campaign— specifically, when they tweet about a specific issue area (making a public statement about their pref-

erences on that topic), if this leads to contributions to their campaign from relevant organized interests. For this to be the case, an interest group needs to 1) see the campaign's tweet, 2) internalize this, and then 3) respond by, potentially, giving future support.

Interest groups are present on Twitter, where they both follow and mention congressional candidates. This suggests that if a candidate posts a tweet on a topic a group cares about, the group may see it— evidence for part 1) and the possibility of part 2) above. In the second part of this chapter's analysis, I seek evidence of this leading to part 3) and ask whether the campaigns who tweet on these topics receive offline benefits (campaign contributions) from groups in these issue areas.

Next, I present the tweet and contribution data that I use in the following analysis. It has two main parts: the first tests the overall relationship over the two-year election cycle between a candidate's tweets on an issue and the contributions he or she did (or did not) receive. I find broad support for both Hypotheses 1 and 2, that the candidates who tweet at least once on an issue receive more contributions than those who don't, and this increases with additional tweets. As a first step of gaining a better understand the mechanisms behind these trends, the second part of the analysis tests one potential direction of causality— whether when a candidate tweets, this leads to more contributions they receive.

6.2.1 Data

Constructing Tweet Dictionaries

I am interested in whether tweets made by congressional campaigns on certain issue areas influences the contributions that they receive from relevant industries; I scraped the 1,582,045 tweets made by all candidates who ran in the 2018 primary and general elections between November 2016 and November 2018. In total, this is 2,434 unique candidates. Of these tweets, I subset those that are related to my three topics

of interest— labor/business, agriculture, and LGBTQ issues— by building an original "*dictionary*" of terms for each. A dictionary is a collection or words or phrases which share a common theme and can be used to classify data— here, tweet topic. An example of each type of tweet is shown in Figure 6.1. The top-left image is classified as a labor tweet, the top right is an LGBTQ tweet, and the bottom is an agricultural tweet. As described in greater detail below, I use the number of issue tweets made by a candidate to construct the independent variables and, separately, to assignment treatment in the analysis.

Figure 6.1: Examples of issue tweets.

Using a dictionary for this text analysis task is a relatively simple way to extract tweets around a narrow and known topic. Each of the three dictionaries is composed of several different lists of "*strings*" (words), and a tweet is coded as being related to a given topic if it includes at least one of the words in the dictionary for that

issue area. Every dictionary here is composed of three types of strings: the Twitter handles of interest groups in the issue area, the legislation number of roll call votes on the topic, and additional words that I added to increase the likelihood that I am able to capture as many of the potentially relevant tweets as possible. A general overview of the contents of each dictionaries is provided in Table 6.5. It shows the breakdown of each sub-category of issue area dictionary. Additional information and sources of where I collected group handles and legislation numbers are provided in the Appendix.

The Twitter handles used in each dictionary include all federal, non-profit groups included in the friend and mention analysis previously, as well as other state-level organizations and staff. These additional "Other" groups are included in the dictionaries but not in the previous analysis of follow and mention behavior for several reasons. Theoretically, these types of groups (and their leaders) may offer something different to campaigns, or may not be as valuable of supporters as national organizations.[1] I include those that I could collect here as a way to maximize the reach of the dictionaries and increase the likelihood that I am able to capture as many tweets by congressional campaigns on these topics that I can.

With the dictionaries, I subset tweets made by candidates for congress in 2018 about my three issue areas of interest— labor, agriculture, and LGBTQ. In total, there were 48,723 unique labor tweets (26,580 by challengers and the remaining 22,143 by incumbents), 18,781 agriculture tweets (9,673 by challengers and 9,108 by incumbents), and 11,300 tweets about LGBTQ topics (7,584 by challengers and 3,716 by incumbents). To show trends over time, plots of tweets made by all candidates on each topic each month, respectively, by both incumbents and challengers are shown in Figures 6.2, 6.3, and 6.4. Challengers as a group tweeted more frequently than incumbents. Candidates tweeted more than twice as much about labor-related topics

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[1]Practically, I am less confident in my ability to have sufficiently broad coverage of these state-level groups nationwide.

	Labor Dictionary	Agriculture Dictionary	LGBTQ Dictionary
Group Handles (Federal)	273 groups	122 groups	150 groups
Group Handles (Other)	60 groups	200 groups	71 groups
Legislation Numbers	68 votes	56 votes	15 votes
Additional Words	"[L]abor", "[I]nterest [G]roup", "[W]orker", "LaborDay", "[E]mployee", "[U]nion", "[E]mployee", "[M]anufactur", "[W]age", "[G]uild", "[C]onsumer", "[C]onstruction", "[C]ontractor", "@USDOL", "[W]orkforce"	"[A]gricultur", "[F]arm", "[R]anch", "@USDA"	"LGBT", "lgbt", "GLBT", "glbt", "[Q]ueer", "[G]ay", "[L]esbian", "[T]rans", "[T]ransgender", "Stonewall", "[B]isexual", "[I]ntersex", "AIDS"

Table 6.5: Overview of dictionary content, by issue area.

than they did about agricultural issues, and almost four times as frequently as they did about LGBTQ topics. As can be seen, there is variation over time with overall increases in number of tweets starting in early 2018 and into the summer and fall. This likely was due to the looming proximity of primary elections and the general election that November.
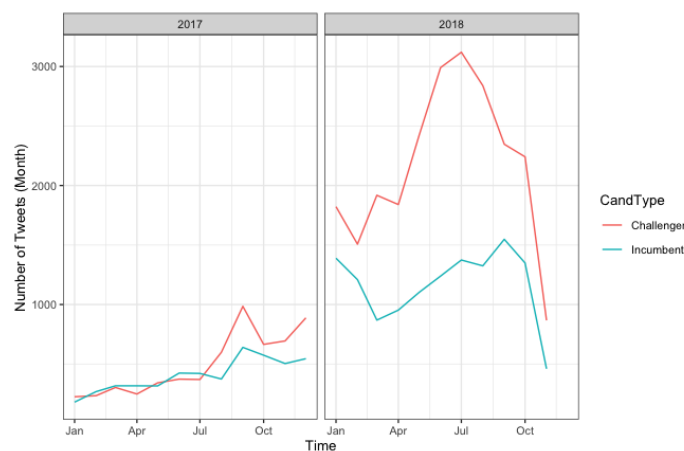
Figure 6.2: Plot of monthly labor tweets by congressional candidates.

Figure 6.3: Plot of monthly agriculture tweets by congressional candidates.
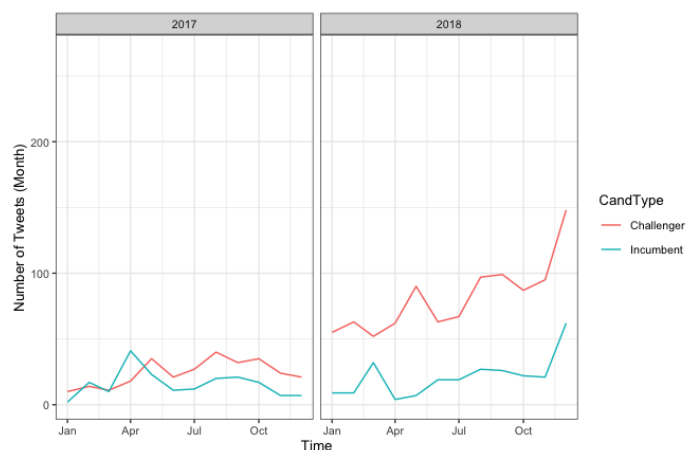
Figure 6.4: Plot of monthly LGBTQ tweets by congressional candidates.

Campaign Contributions

A potential concern about using campaign contributions from interest groups is the existence of 501(c)(3) groups in the data, because they are not able to engage in politics in this way. The breakdown of groups across the three issue areas included in the dictionaries are shown in Table 6.6. Most of the LGBTQ groups in the dictionary are 501(c)(3)'s, as are about two thirds of the agriculture groups and less than a third of the labor organizations. Though not all of the interest groups used to label tweets cannot contribute to a campaign themselves, some of them have relationships with groups who can and there are many organizations and individuals involved in

these issue areas who have a vested interest in supporting like-minded allies in their election and the ability to do so. In these cases, tweets by candidates for Congress on a certain area or mentioning a specific group can still be an informative signal of their preferences and priorities.

	501(c)(3)	501(c)(4)	501(c)(5)	501(c)(6)
Labor Groups	53	20	99	62
Agriculture Groups	57	5	9	22
LGBTQ Groups	74	11	0	5

Table 6.6: Frequency of interest groups in dictionary, by issue area, by tax exemption code.

I acquired data on contributions given to congressional campaigns in 2017 to 2018 from Follow the Money (NIMP N.d.)[2] in four categories— Agriculture, Labor, Anti-Labor, and LGBTQ.[3] For each unique contribution from a given category, it includes data on the candidate, contributor, type of contributor (individual or non-individual), and contribution, including the date it was given and the amount. An overview of the Follow the Money data by industry is provided in Table 6.7. Follow the Money defines an industry as an "economic sector that includes unions, businesses, and the individuals who own or work for an identifiable economic sector".

Candidates received thousands of campaign contributions from each industry for millions of dollars overall— the highest number of unique contributions, 53,711, came from anti-labor and the second highest number, 24,406, from labor groups. Candidates received 19,408 contributions from agriculture groups and activists, and 3,685 from LGBTQ organizations. The largest amount of total contributions came from anti-labor at almost $64 million and the second largest from labor at nearly $54 million. Hundreds of candidates received campaign contributions from these groups— of the 2,434 accounts in my tweet data, 1,244 received at least one contribution from

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[2]I am grateful that they granted me expanded access for this project as an academic researcher.

[3]Follow the Money distinguishes between Labor and Anti-Labor/Business, and I keep them separate here and in later analyses.
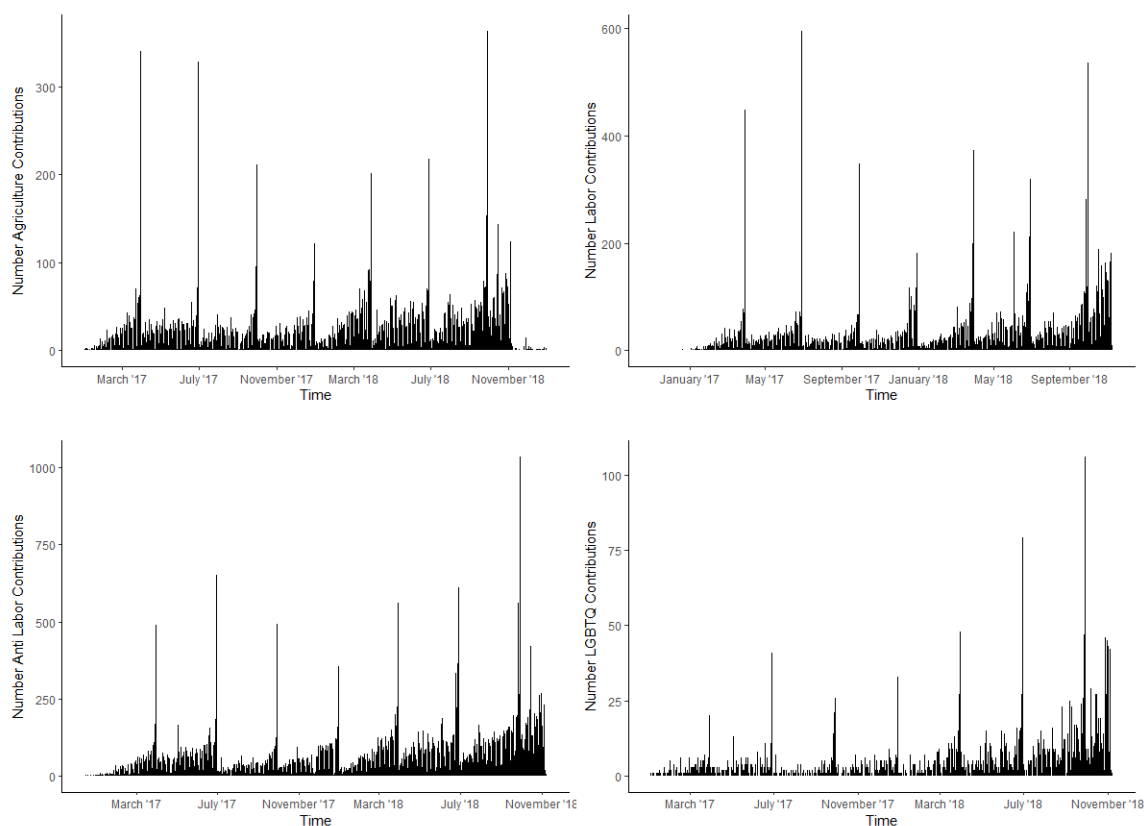
Figure 6.5: Plots of the daily number of contributions received by 2018 congressional campaigns, by issue area.

an anti-labor organization, 801 from an agricultural group, 738 from a labor group, and 707 from an LGBTQ organization.

I constructed two different dependent variables using campaign contributions—one is the number of campaign contributions that a campaign receives, and the other is the (logged) total amount of contributions in dollars the campaign received from the industry. For each of these, I further distinguish between contributions from "individuals" and from "non-individuals". Non-individuals include organized interests and other organizations (such as political action committees, or PACs); individuals may or may not be directly involved in interest groups in these issue areas but are labeled as a part of the industry. To account for this distinction, in the following

		Contributions (Num)	Contributions (Amount $)	Candidate Number
Agriculture	Overall	17,684	24,048,209	795
	Individuals	8,721	7,461,212	727
	Non-Individuals	8,963	16,586,997	470
Labor	Overall	21,787	47,975,039	732
	Individuals	2,355	380,773	268
	Non-Individuals	19,432	47,594,266	696
Anti-Labor	Overall	48,100	56,463,147	1,075
	Individuals	31,796	26,044,299	1,065
	Non-Individuals	16,304	30,418,848	538
LGBTQ	Overall	3,284	5,066,447	611
	Individuals	1,098	521,764	234
	Non-Individuals	2,186	4,544,683	545

Table 6.7: Overview of Follow the Money data, by industry.

analyses I estimate models where the contributions dependent variable includes those from individuals and non-individuals, and also limited to non-individuals only.

6.2.2 Overall Relationship Between Tweets & Contributions

In the first part of this analysis, I use the above tweet and contribution data, as well as controls detailed below, to assess the overall relationship between a candidate's tweets on an issue area and the contributions that she receives from relevant interest groups and activists on the same topic. The controls are included to account for common explanations from the literature about features of candidates and members of Congress that interest groups consider when choosing who to support, such as party or committee membership.

The outcome of interest for all models estimated is campaign contributions. As outlined above, this includes both the number and total (logged) amount of contributions received by an individual candidate. In different specifications, all contributions are included (from both individuals and non-individuals in an industry) or they are limited to those from non-individuals only. I use the issue tweets that I subset with the dictionaries to construct two different independent variables for each candidate's

tweet activity. The first is an indicator with a value of 1 if the candidate ever tweeted about the issue and 0 otherwise; this is used to test Hypothesis 1, that candidates who tweet about an issue are more likely to receive contributions from interest groups focused on that issue than those who did not. The second is a measure of the number of tweets by a candidate per issue area, which is used to test Hypothesis 2, which theorized that this benefit will be higher for those who tweet more frequently on a topic.

Controls

To be able to more credibly claim that campaigns use Twitter to communicate directly to these groups, I seek evidence of this *beyond* features of representatives and congressional candidates that we already know or believe influence these outcomes. These include incumbency, partisanship, committee membership (for incumbents), and district employment in the industry.

From the evidence presented in the previous sections, there are descriptive differences between incumbents and challengers, as well as theoretical differences in the incentives they hold for wanting to publicly share their preferences from Chapter 3. Incumbents are the most likely to have past behavior or stances that they want to reinforce, while challengers seek to introduce information about themselves and signal how they would behave if elected. A candidate is coded as an incumbent if they were elected to the House of Representatives in the 2016 general election. For many groups, a candidate's party membership can be an informative heuristic about how likely their preferences are to align (see Grier and Munger 1993, Herndon 1982). In the following analyses, I control for candidate party to account for this.[4]

An important part of a representative's past interactions and potential allyship with a group is their committee membership. As discussed earlier, these representatives are more likely to be able to influence the policy-making process. For example,

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[4]I limit the analysis to Democratic and Republican candidates.

legislators who serve on the Agriculture or Natural Resources committees may be of particular interest to agricultural groups due to their potential influence on the policies they care most about (see Parrott 2019). An incumbent was coded as being on a relevant agriculture-related committee if they were a member of the Agriculture, Natural Resources, Energy and Commerce, Science, Space, and Technology, Education and the Workforce, or Small Business committees during the 115th Congress. Similarly, an incumbent was coded as being on a relevant labor-related committee if they were a member of the Small Business, Education and the Workforce, Transportation and Infrastructure, Science, Space, and Technology, Energy and Commerce, or Natural Resources committees during the 115th Congress. Such a variable is not included in the analysis of the LGBTQ groups and tweets as this issue area lacks obvious linkages between a committee and the topic.

The importance that a candidate places on support from these industries, especially labor and agricultural groups, may vary by features of the candidate's district. How much of his or her district is employed in a relevant sector or industry? If it is particularly high or low, this may shape the weight that they place on an issue. To account for this, I used the American Community Survey 1-Year Estimates of district-level industry civilian employment of those aged 16 and older (USCensusBureau 2018). For the analysis of the agriculture issue area, I control for the number of those employed in agriculture in the district, "Agriculture, Forestry, Fishing and Hunting, and Mining". Similarly, for labor and anti-labor I control for the number of people in a district employed in "Manufacturing".

Analysis

The purpose of this analysis is to understand why congressional campaigns make as extensive use of Twitter that they do— is one explanation that they believe organized interests and industries see their posts and use that information as an informative signal about who their allies are, and then are more likely to contribute to the can-

didate's campaign? In other words, does Twitter offer campaigns *something new*— something above what interest groups may also know about them from their party, incumbency, or committee membership. I test this possibility in several ways. The main structure of the OLS regression equations I estimated is of the form shown in Equation 6.1:

$$Cont_i = \alpha_i + \beta_1 Tweets_i + Incumb_i + Party_i + OnComm_i + DistEmployed_i + \epsilon \quad (6.1)$$

As introduced previously, the outcome of interest $Cont_i$ is the contributions received by a candidate i from a given industry— depending on the model, this is either the number of unique contributions or the (logged) amount received, from all contributor types. $Tweets_i$ represents the candidate's tweet activity in the issue area— either an indicator with a value of 1 if the candidate tweeted on the topic (and 0 otherwise) or the number of unique tweets posted. I estimated models with and without the listed controls, as well as state fixed effects.

In the body of the chapter, I present plots of the point estimates for β_1, the coefficient for the *Tweets* variable from Equation 6.1 above. Each issue area is presented separately. Color denotes the type of contributor, either non-individuals alone (gray), or non-individuals and individuals (all, colored black), and shape shows whether the model included fixed effects and controls or not. The full regression tables are provided in the Appendix, and I discuss the results for each issue area in turn. For each of the three main issue areas, each plot contains four sub-plots, or panels, labeled A–D. Each sub-plot contains the estimate for a listed subset of results.

The results for agriculture are shown in Figure 6.6. As shown in the first column (A and B), for both the number of agriculture tweets and the indicator of whether a candidate tweeted about agriculture, those who tweeted on the topic received more contributions from individuals and non-individuals in agriculture. These results pro-
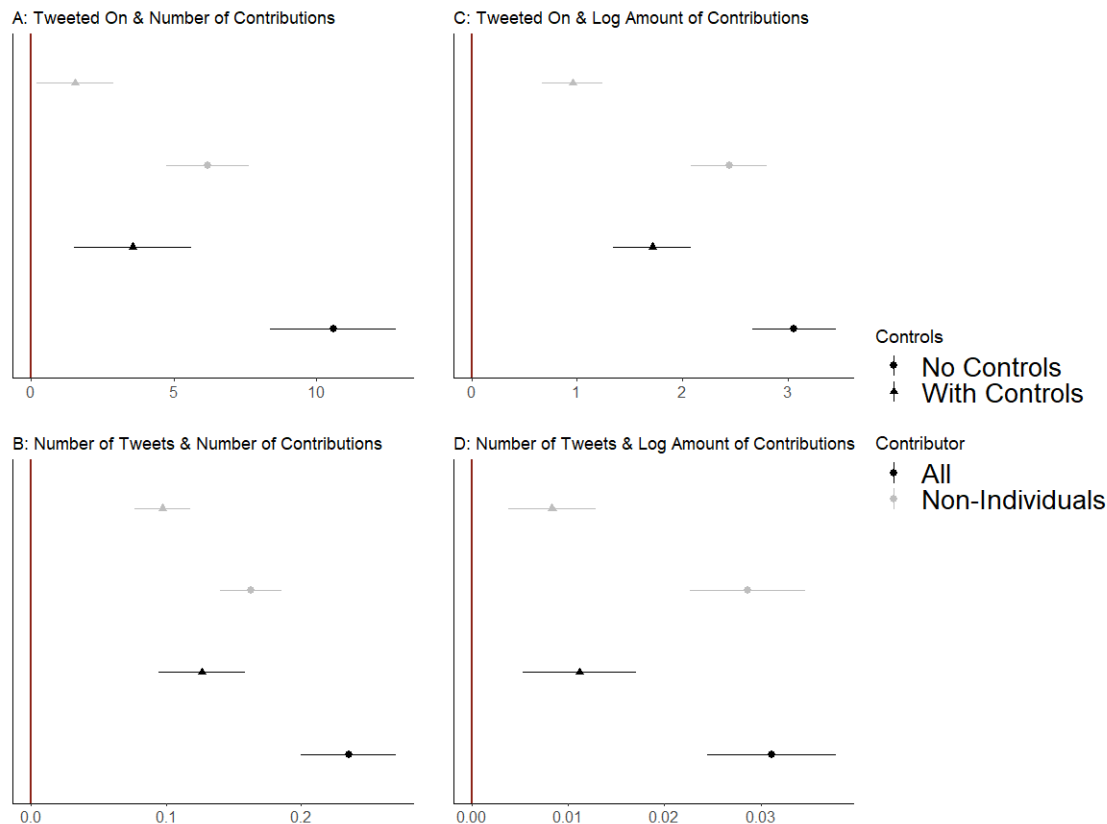
Figure 6.6: Point estimates from OLS models on agriculture.

vide support for Hypotheses 1 and 2. In panel A, the average number of overall agriculture-contributions received by a candidate is 11 and 6 from non-individuals. For a sense of the magnitude of these results, candidates who tweeted about agriculture at least once received almost 14 overall (and 8 from non-individuals) contributions more than those who did not; these results remain, though they decrease in magnitude to about 4 contributions (2 from non-individuals), with the inclusion of controls for party, incumbency, whether the incumbent was on an agriculture-related committee, and the percent of their district employed in agriculture. From panel B, for each additional agriculture tweet candidates received almost 0.3 additional contributions overall and just under 0.2 when limited to only non-individuals. When controls were added the magnitude dropped to about 0.16 and 0.12 contributions, respectively.

Similarly, the results in the second column of Figure 6.6 suggest that candidates who tweet more or at all about agriculture receive a larger total amount of agriculture contributions than those who did not, and continue to provide more support for Hypotheses 1 and 2. These results remain when controls were added, though they decrease in magnitude. The average amount of agriculture contributions received from both individuals and non-individuals is \$15,190. From panel C, candidates who tweeted about agriculture at least once received \$3,462 more from these organizations and individuals than those who did not; this drops to an additional \$448 when controls are added. When limiting to contributions from non-individuals, the average amount of contributions is \$11,062. Candidates who tweeted about agriculture received \$2,663 more than those who did not tweet on the topic with no controls, and \$209 with controls. For each additional agriculture tweet shown in sub-plot D, candidates received an additional \$3.90 overall and \$3.70 from only non-individuals (\$1.30 and \$1 with controls, respectively). Over the thousands of tweets made by the candidates, these sums can add up.

The main results of the labor models are shown in Figure 6.7. As with agriculture, the plots show results for models with and without controls, from all contributors and limited to only non-individuals. Turning to the first column and sub-plot A, and the results of models testing Hypothesis 1, I find evidence in support of my expectations. The average number of labor contributions received by a candidate was 15; those who tweeted at least once on labor received almost 18 more contributions than those who did not. The trend stays the same, but the magnitude of the relationship drops by about half to 9 additional contributions, with the addition of controls. Similarly, in panel B, when the independent variable is the number of labor tweets, every additional tweet leads to 0.25 more contributions overall, and remains positive and statistically
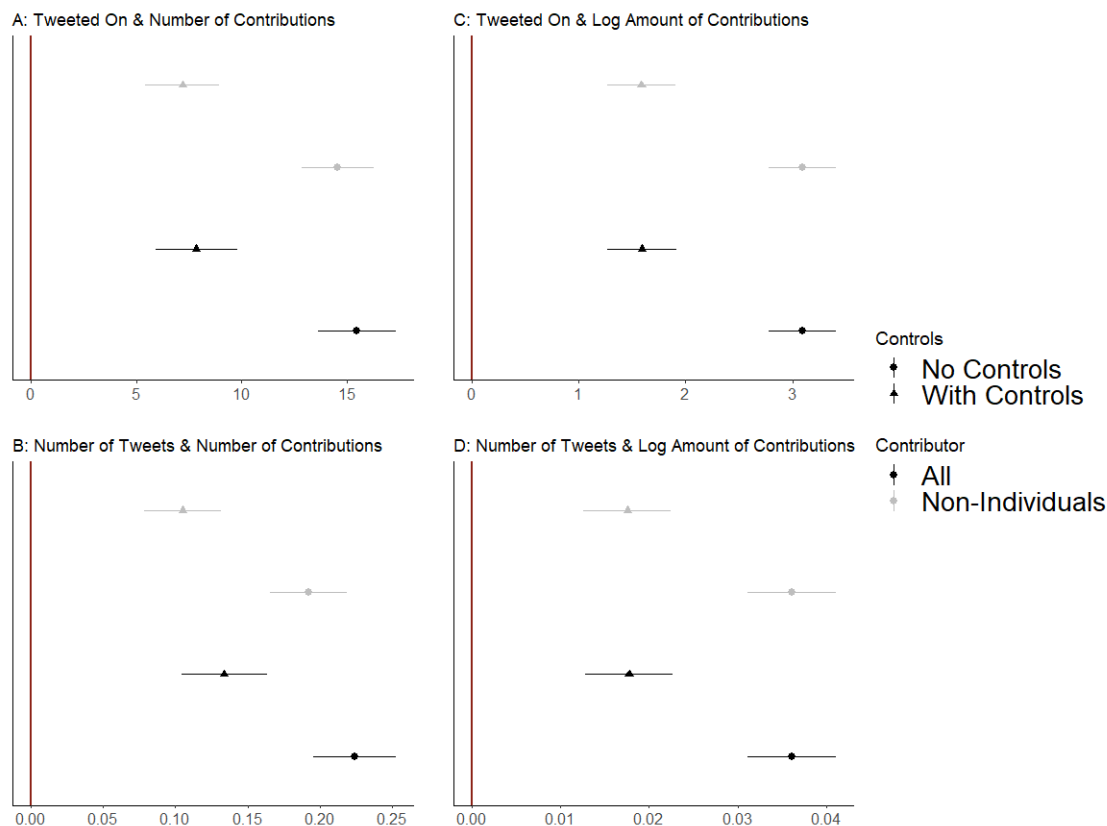
Figure 6.7: Point estimates from OLS models on labor.

significant but drops to 0.14 more contributions when controls are included in the estimations. This provides further support for Hypothesis 2.[5]

Turning to the second column of Figure 6.7 and starting with panel C, candidates who tweeted about labor received \$3,462 more in overall contributions than those who did not (\$448 more with controls) and \$3,509 more in non-individual contributions than those who did not (\$449 more with controls). These each represent substantial portions of the average amount of contributions received from labor groups overall, \$29,881, and the average amount of contributions received from non-individuals, \$29,698. This provides additional support for Hypothesis 1. In panel D, for each ad-

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[5]Results using the frequency of labor tweets as the independent variables, but the number of anti-labor contributions rather than labor contributions, are shown in the Appendix in Figure A.22. The results are in the same direction as those in Figure 6.7, but smaller in magnitude. This is not surprising, as the labor dictionary leans pro-labor.

ditional labor tweet, candidates received \$4.10 overall and limited to non-individual contributions without controls. When controls were added, candidates received \$1.82 with each additional labor tweet. This again provides more support for Hypothesis 2.[6]

I also estimated models of the same form as for agriculture and labor for LGBTQ tweets and contributions. As previewed in the overview of the types of groups' tax status in my dictionaries, LGBTQ groups are more likely to be 501(c)(3)'s than the other issue areas in this project. There are less contributions (both in number and amount) from LGBTQ individuals and non-individuals, and this behavior is undertaken by less organizations active in this area, but the results are consistent with what I found in the analysis of the other issue areas and continue to provide some support for Hypotheses 1 and 2. The average number of contributions received from LGBTQ organizations and individuals overall is 1.75 and 1.3 from non-individuals. In Figure 6.8, panel A, the candidates who tweeted about LGBTQ issues received 1-2 additional contributions than those who did not, both overall and limited only to non-individuals and with(out) controls. As seen in panel B, for each additional tweet on the topic, candidates received 0.06 additional contributions (which decreased with the addition of controls and when limited to only non-individuals).

The results of models estimating the relationship between LGBTQ tweets and the logged amount of contributions received are shown in the second column of Figure 6.8. The overall trends are the same as for the other topics; from panel C, the campaigns who tweeted about LGBTQ issues received \$439.80 more overall from those groups and individuals than those who did not tweet about the topic, and this dropped to \$212.36 with the addition of controls. When restricted to only contributions from non-individuals, candidates who tweeted about LGBTQ matters received \$265.83 more than those who did not and \$145.22 when controls were included. These results

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[6]Results using the frequency of labor tweets as the independent variables, but the number of anti-labor contributions rather than labor contributions, are shown in the Appendix in Figure A.22. The results are in the same direction as those in Figure 6.7, but smaller in magnitude.
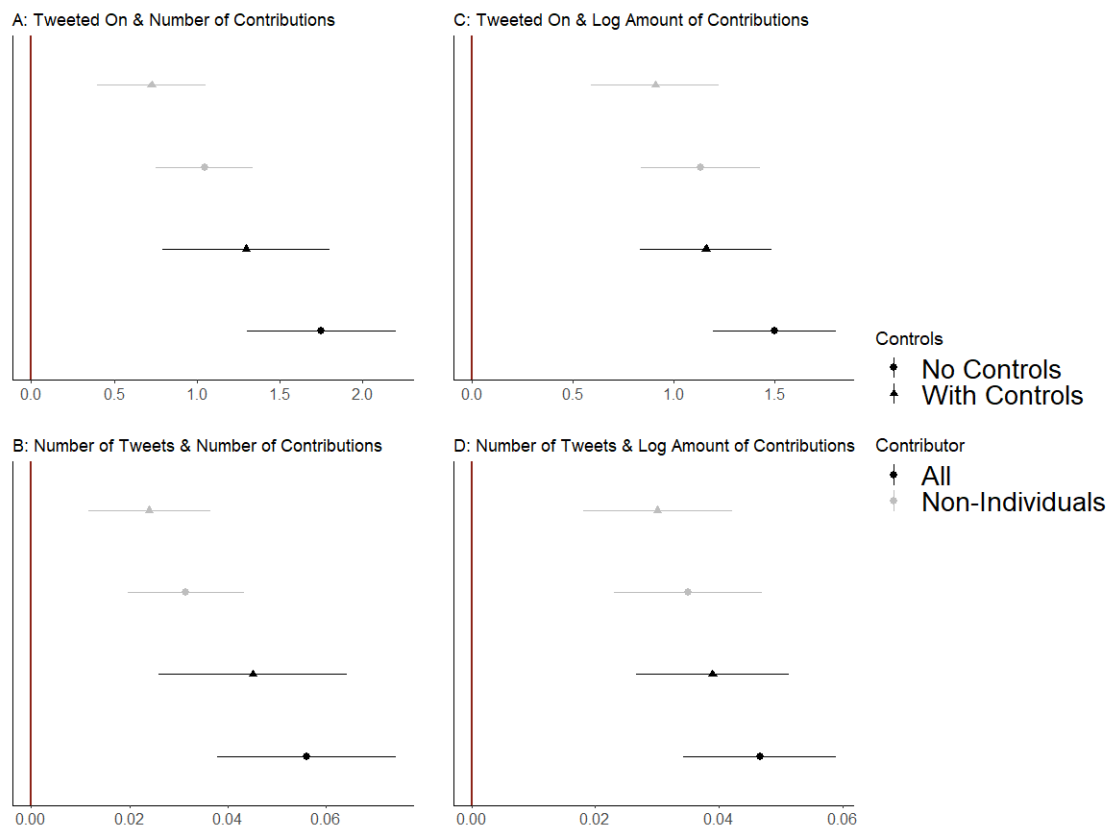
Figure 6.8: Point estimates from OLS models on LGBTQ issues.

continue to support the expectations of Hypothesis 1. As a test of Hypothesis 2, sub-plot D shows that candidates received an additional \$5.34 for each tweet from all individuals and non-individuals (\$4.08 with controls) and \$4.08 from only non-individuals (\$3.15 with controls). These results again support my predictions.

	Pro-LGBTQ Tweet Freq	Anti-LGBTQ Tweet Freq
Number of Contributions from Pro-LGBTQ Groups	0.988	0.375
Number of Contributions from Anti-LGBTQ Groups	0.185	1.033

Table 6.8: Comparison of the average number of contributions received from pro- and anti-LGBTQ groups, by the number of tweets made by congressional candidates for or against the topic.

One potential concern for LGBTQ contributions is that groups who are for and against LGBTQ issues are included in the data and are not separated as they are for labor and anti-labor. Though I cannot make a conclusive statement about the hundreds of individual contributors in the Follow the Money LGBTQ data, I do know what the non-individuals' stance on this topic is.[7] I show the mean number of contributions from these groups, by the number of tweets by a candidate made for or against LGBTQ rights, in Table 6.8. As can be seen, pro-LGBTQ and anti-LGBTQ groups gave the most number of contributions, respectively and on average, to campaigns who tweeted in line with their preferences. Similarly, the average amount of contributions (not logged) from pro-LGBTQ and anti-LGBTQ groups by whether the candidate in favor of the issue or not is shown in Table 6.9. Groups gave mostly to candidate aligned with their preferences— either for or against LGBTQ issues.

	Pro-LGBTQ Tweet Freq	Anti-LGBTQ Tweet Freq
Amount of Contributions from Pro-LGBTQ Groups	$2,084	$683
Amount of Contributions from Anti-LGBTQ Groups	$329	$1,710

Table 6.9: Comparison of the average amount of contributions received from pro- and anti-LGBTQ groups, by the number of tweets made by congressional candidates for or against the topic.

6.2.3 Do Tweets Lead to Contributions?

The results presented so far suggest that tweets offer some signal of allyship from congressional campaigns to interest groups and activists, even beyond what the literature would suggest as common explanations of this behavior such as partisanship, incumbency, or committee membership. While showing overall, aggregate trends and relationships is informative, such methods do not fully consider the intricacies of this dynamic process. Plots of weekly number of contributions and tweets, by issue area,

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[7]I hand labelled the 64 non-individual groups included in the data.

are in Figure 6.9 and show variation between and within each issue area. There is tweet and contribution behavior over the full two year election cycle, with occasional spikes and a general increase towards the end of the time period when the general election occurred.
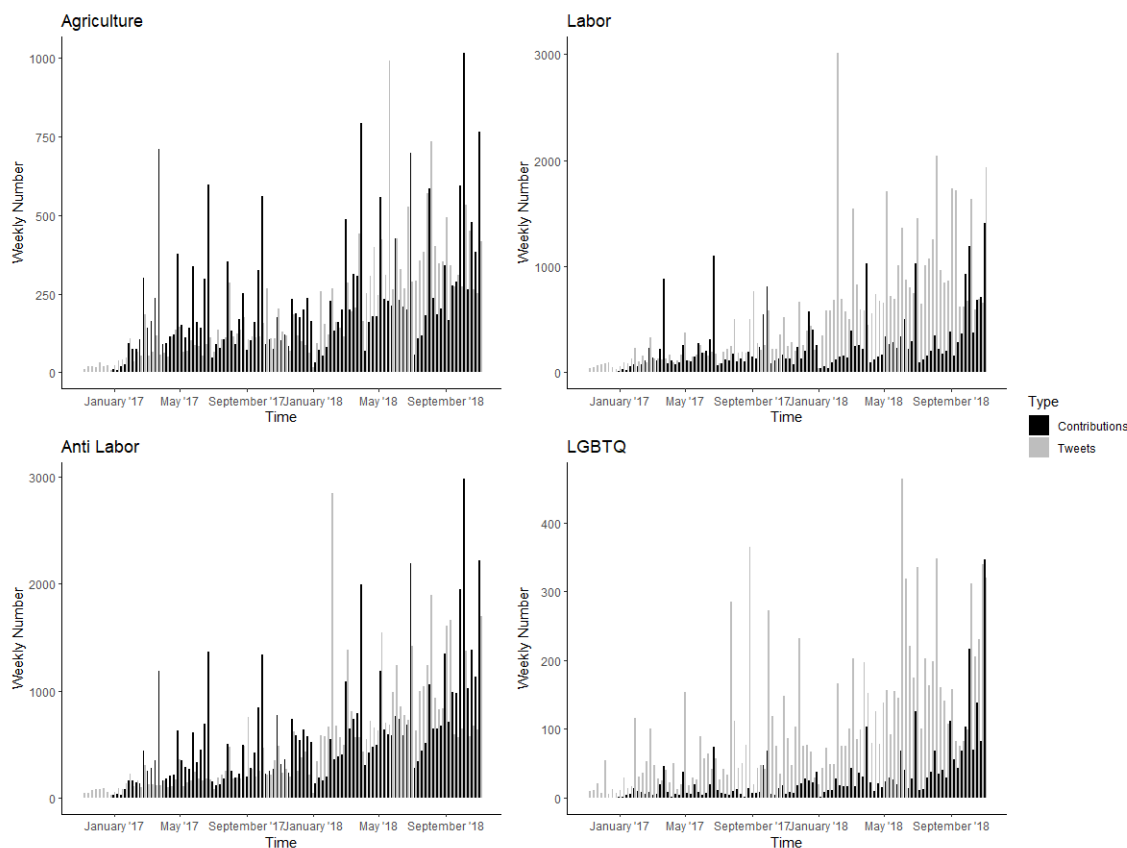
Figure 6.9: Plots of the weekly number of tweets made and contributions received by congressional campaigns, by issue area.

Additionally, there is a theoretical question of directionality here which the above analyses does not address— do legislators tweet, then the interest groups contribute, or vice-versa? Alternatively— do candidates tweet to induce contributions, or do they tweet in response to contributions after they have received them? Is it possible to assess who influences who, or does it go both ways?

In the next sections, I test if tweets act as a "treatment" for campaigns— if, when a candidate tweets about a topic, they are perceived as sympathetic, or an ally, by the

interests most involved in that issue area and in a way that is different from those who did not ever tweet on the topic (here, a control group). Put another way, do tweets directly lead to contributions? The goal here is to estimate the counterfactual— if a candidate had never tweeted about an issue area, how many campaign contributions would she have received from individuals and groups active in that field?

Liu, Wang and Xu offer a unified framework of three ways to estimate the counterfactual— the fixed effects, interactive fixed effects, and matrix completion estimators (2020). This framework helps researchers to better deal with concerns that important assumptions from two-way fixed effects models, that there are constant treatment effects (for all three estimators) and no unobserved time-varying confounders (for the last two estimators), are not met in the applied setting where the method is being used.[8] I use these methods below, but first describe the structure of the data.

Data Structure

To use this framework, the data is structured with N units and T time periods— here, 2,191 congressional candidates across 105 weeks (the number of weeks between November 9, 2016 and November 6, 2018). For each of the four issue areas, the data frame has 230,055 rows and is very sparse. Candidates are divided into treatment and control groups— those who never tweeted about the issue area are in the control group and those who tweeted about the topic at least once are in the treatment group. The number of candidates under treatment and control for each issue area is shown in Table 6.10.

Treatment indicator D exists for each candidate-week. It always has a value of $D = 0$ for candidates in the control group. For candidates in the treatment group it has a value of $D = 0$ before they tweet about a topic, and $D = 1$ from the week

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[8]The interactive fixed effects and matrix completion estimators are more similar to each other than the fixed effects estimator. Both interactive fixed effects (IFE) and matrix completion (MC) use regularization to try and get better predictors of the counterfactual (treated units if they had never been treated). They differ in the specific regularization procedures.

	Number Control	Number Treatment
Agriculture	747	1,444
Labor	424	1,767
Anti Labor	428	1,763
LGBTQ	1,102	1,089

Table 6.10: Breakdown of treatment and control units (campaigns), by issue area.

that they make their first tweet on the topic until the end of the data. The end date of the data varies for each candidate by whether they successfully made it through their party's primary to the general election in November 2018. For those who ran in the general, they are present until the end of the time frame. For those who lost in their party's primary (or withdrew before), I remove them from the data following the date of their primary. This is to account for the fact that once a candidate is no longer running, when they receive 0 contributions it is not because of their Twitter behavior, but rather due to the fact that they are no longer a candidate.

The breakdown of units under treatment and control for the 2,191 candidates across all time periods in shown in Figures 6.10, 6.11, 6.12, and 6.13. The left plots show the status of the first 500 candidates. Each row of squares corresponds to one of the 500 candidates, and each column represents a week. The weeks start at $T = 1$ at the far left, and continue to the right to $T = 105$. Treatment ($D = 1$) begins the first week that a candidate tweeted about a topic; the color changes from light to dark and the value of the treatment indicator moves from $D = 0$ to $D = 1$. For the right plots, all candidates are shown. The relative number of those treated ($D = 1$, the teal) and control ($D = 0$, salmon) can be seen as it changes over time, as well as the loss of candidates as they are not successful in their respective primaries. As with the first plot, $T = 1$ starts on the left, and continues along the x-axis until $T = 105$.

Analysis

Liu, Wang and Xu suggest that scholars estimate each of the three estimators in turn once you have decided to use their framework (they increase in complexity),
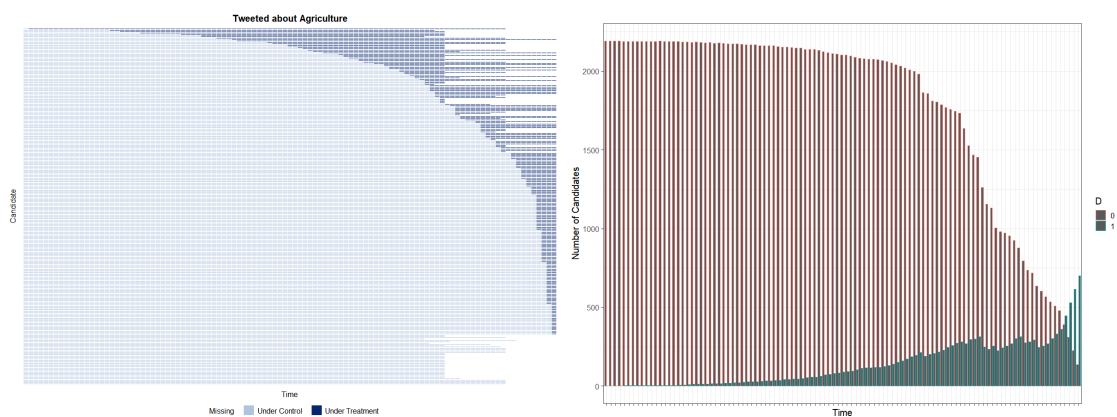
Figure 6.10: Agriculture treatment and control status over time.
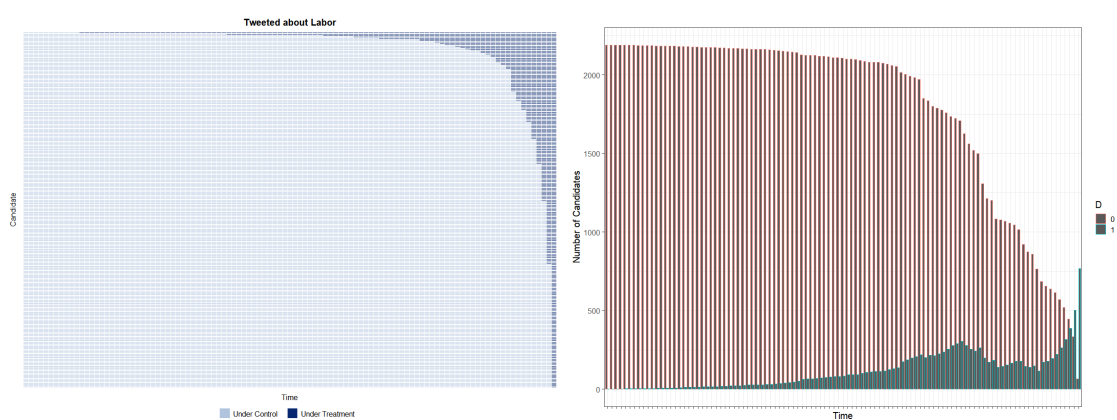
Figure 6.11: Labor treatment and control status over time.
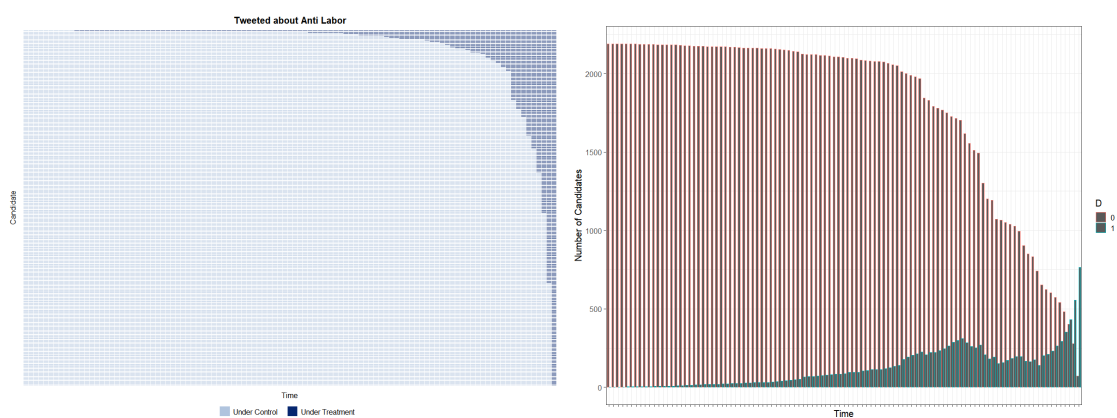
Figure 6.12: Anti labor treatment and control status over time.

assess the results, and use the first method that passes diagnostic tests and/or has the most predictive power, or lowest mean squared prediction error (MSPE) (2020). This is the approach that I took for this analysis. As with the overall regression
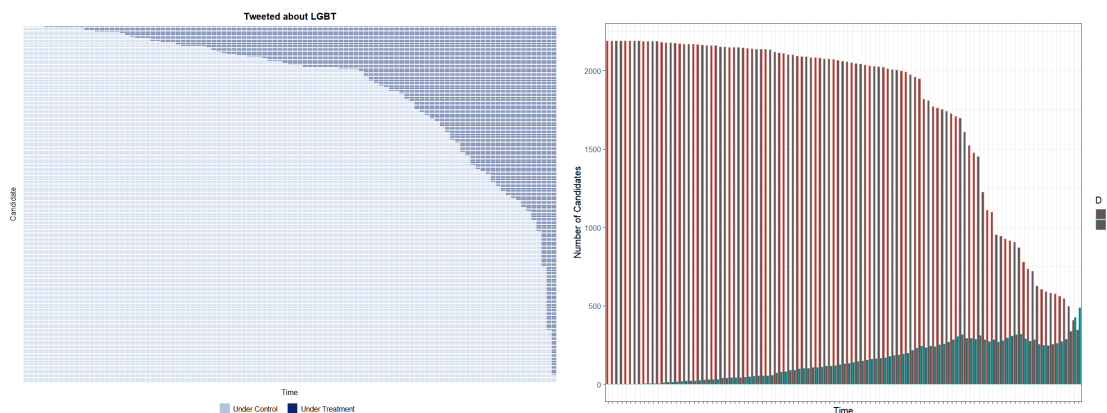
Figure 6.13: LGBT treatment and control status over time.

analysis presented previously, I estimated several specifications for each of the four contribution issue areas — the number and amount of all contributions and contributor type. Across the different combinations of specifications, this is 16 total models. Here I do not include state fixed effects or controls for party, incumbency, committee membership, or district employment, as they do not vary by time.
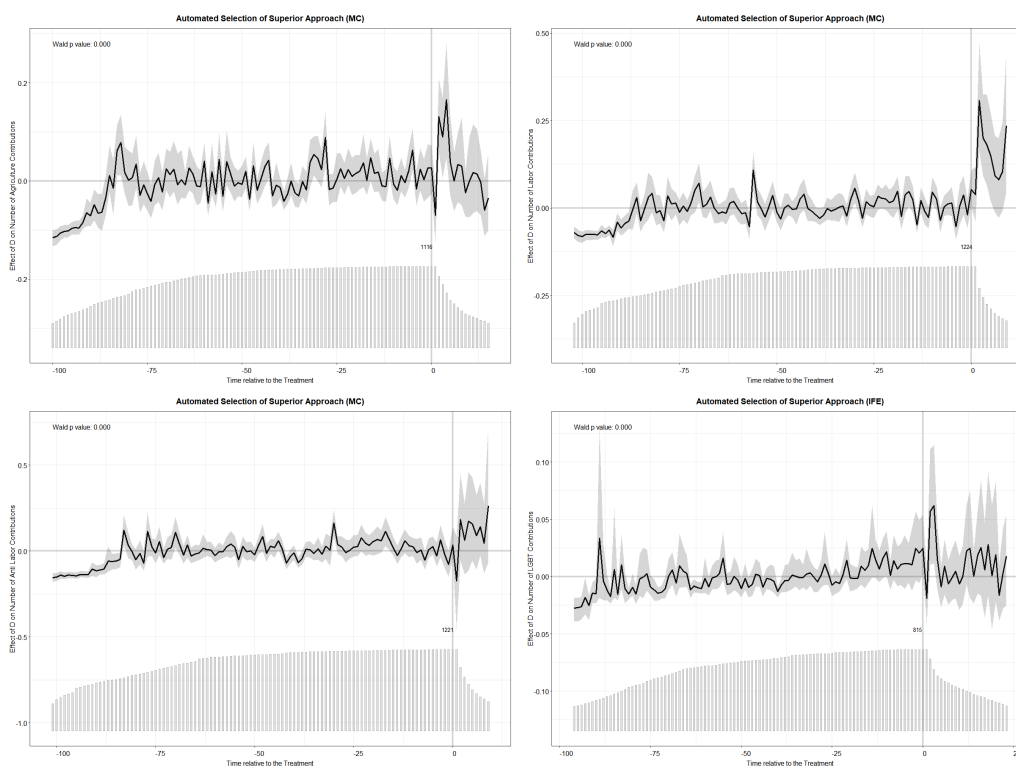
Figure 6.14: Gap plots of the dynamic treatment effect of most predictive estimator for each issue area on number of contributions.

For most of the issue areas and specifications, the matrix completion estimator offered the most predictive power. The only exception was the LGBTQ topic, which performed better with the interactive fixed effects estimator. Regardless of the estimator used or type of contribution as the outcome of interest, I find null results for all issue areas except for labor. This may be partially due to how I assign treatment, which starts from the first time that a candidate tweets about a topic. The threshold of one tweet is quite weak and does not take into account the intensity or frequency with which a candidate tweets on an issue area.

Gap plots, which present the dynamic treatment effect, or the estimated ATT (average treatment on the treated) for each time period T (a week), are shown in Figure 6.14 for all four issue areas. For each, the vertical line marks the time period when treatment for a candidate occurred. Time periods to the left of the vertical line occurred before treatment, and those to the right occur after treatment. The bar plot on the bottom of each plot shows the number of treated candidates in a given period. These gap plots show the effect of treatment (tweeting on a topic) on the number of contributions received by a candidate by non-individuals and individuals from that issue area, though the trends from the plots limited only to non-individuals and all plots on the amount of contributions are very similar.

The models here fail a goodness-of-fit Wald test, as shown by the p-value of 0 in the upper left-hand corner of each plot. This means that we reject the null hypothesis that there are no pre-treatment time trends. However, Liu, Wang and Xu suggest that in this type of case an equivalence test is preferred over a Wald test because the equivalence test can allow for the existence of potential confounders if they only introduce a small amount of bias (2020, p. 28), but the Wald test does not. I also ran equivalence tests for these models. The plots of these diagnostic tests are provided in the Appendix, but they show that for agriculture, labor, and anti labor, the matrix

completion estimator passes the equivalence test, but the interactive fixed effects estimator fails for LGBTQ.[9]

Figure 6.15: ATT estimates averaged over all time periods for the effect of tweeting on the number of contributions received by a candidate.

Shown another way, the results from the models where the dependent variable was the number of contributions (across all issue areas and whether limited to non-individuals or not) are shown in Figure 6.15. These point estimates are the ATT estimates averaged across all 105 week time periods, along with confidence intervals. The color designates whether the contributions in that particular analysis were limited to just those from non-individuals or from all contributors within the industry. The shape of the point corresponds to the issue area. Though all are positive, only the results for the models on the effect of tweeting about labor are significant— can-

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[9]This is because the minimum bound is smaller than the equivalence bound for these three issue areas.

didates who tweeted about labor received a higher number of contributions from both individuals and non-individuals in the labor sector than they would have if they had never tweeted about the topic.

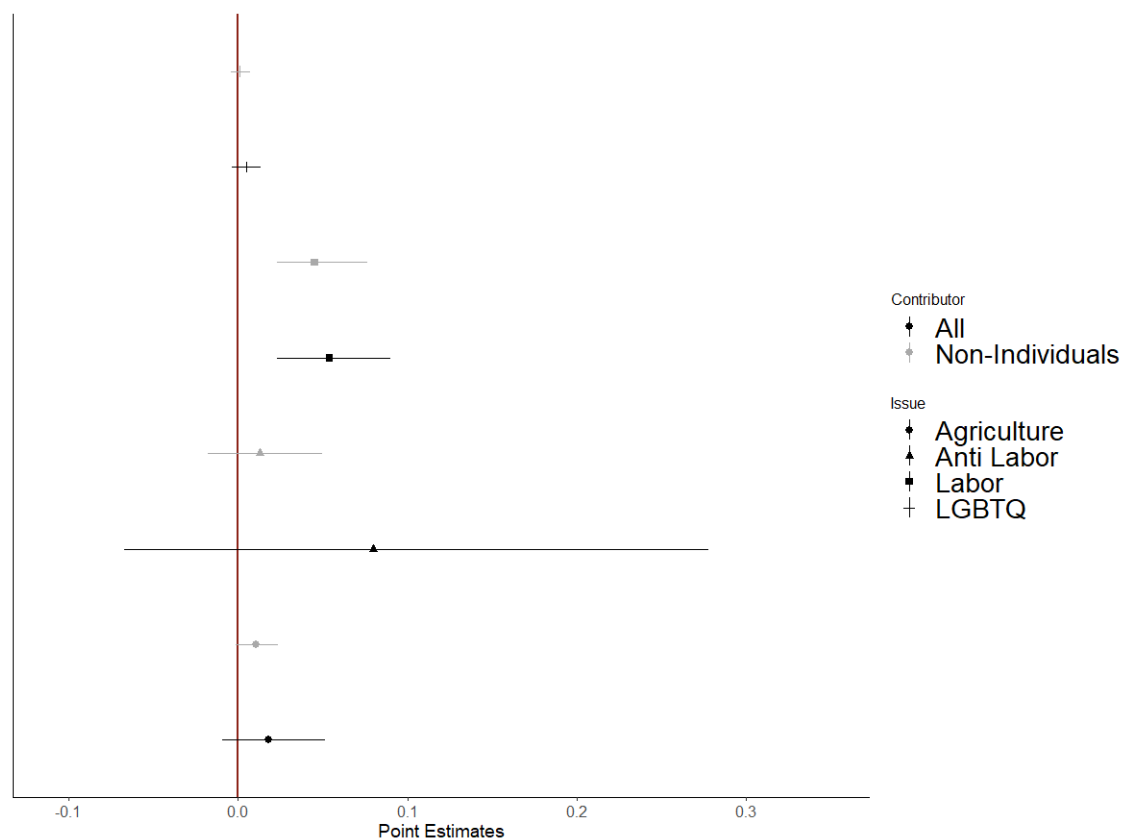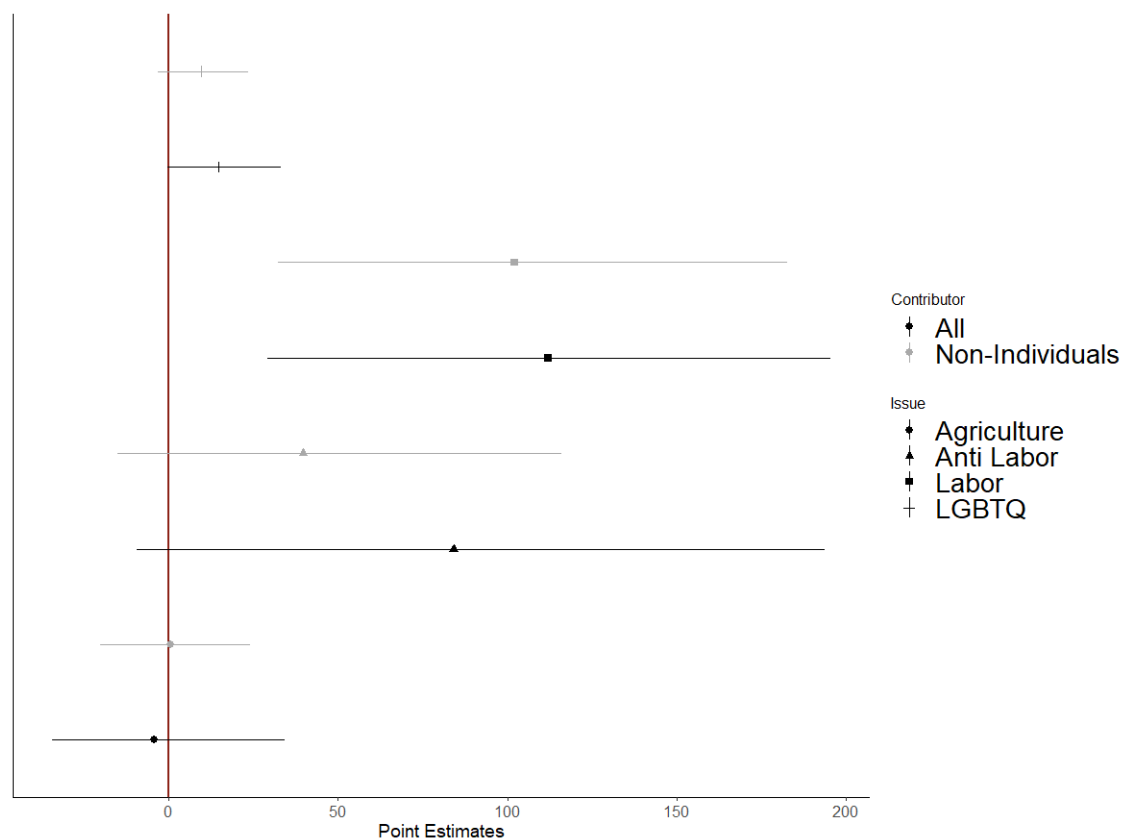

Figure 6.16: ATT estimates averaged over all time periods for the effect of tweeting on the amount of contributions received by a candidate.

Plots of the dynamic treatment effect on the amount of contributions by issue area from all contributors are provided in the Appendix. As with the results for the number of contributions, each model fails the goodness-of-fit Wald test but all but LGBTQ pass the equivalence diagnostic test. The plots of the equivalence tests are also in the Appendix.

As before, another way to consider the results from the models where the amount of contributions was the outcome, across all issue areas and contributor types, are shown in Figure 6.16. It plots the average ATT estimate across all time periods with

confidence intervals. Color and point shape again denote different issue areas and contributor types. As with the results for number of contributions, though most are positive, only the results for labor are statistically significant. The candidates who tweeted about labor also received a larger amount of contributions from labor groups and individuals than they would have if they had never tweeted about the issue.

Though the last part of the analysis, which estimates the counterfactual for candidates who tweeted about a topic, does not offer a full explanation for the evidence found above which provided evidence of a relationship between campaign tweet behavior and contributions received, this is a valuable first step towards understanding the purpose of campaigns' behavior on Twitter. It suggests that there is more to learn about public communication between politicians and other political elites and money in politics.

6.3 Conclusions

The goal of this chapter was to assess the possibility that congressional campaigns use Twitter to communicate directly to other political elites, such as interest groups. To test this possibility, I presented several pieces of evidence about congressional campaigns and interest groups on Twitter in three issue areas— labor, agriculture, and LGBTQ issues. I first established that interest groups are present on the platform and follow candidates for congress (and vice-versa), and also that the two interact through their tweets by mentioning each other by handle. Though this is informative, and not an undesired outcome from a campaign's perspective, it alone does not offer sufficient benefit to a candidate to justify the use of Twitter because something tangible and useful may come from it.

In the second part of the chapter, I launched from this evidence of interaction to consider whether campaign's do gain real-world, offline benefits from their tweets.

I found that across the issue areas, overall, those candidates who tweeted about a topic received more financial contributions to their campaign from the corresponding industry than candidates who did not (and that the more the candidate tweeted on the topic, the more contributions they received). This relationship remained even when I controlled for common explanations of contributions— party, incumbency, committee membership, and proportion of a district employed in a given sector. It suggests that there is some signal from tweets that is above and beyond other publicly available information about candidates for Congress, but does not illuminate details of this process, such as the direction in which it occurs (do tweets influence contributions, or are they a response to receiving a contribution).

To begin to better understand the mechanism behind this signalling, I used a synthetic controls framework to estimate the effect of a candidate tweeting on a topic on the contributions received. I found evidence for only one issue area, labor, that tweets led to increased contributions received by a candidate, both number and amount. Importantly, these findings offer a starker contrast to the prior assumptions in the literature— that politicians use Twitter to communicate to and for their voters. Though more work needs to be done, these results provide evidence that not only do campaigns not tweet for their voters, they actually directly tweet to political elites, and are able to benefit from doing so.

Chapter 7 Conclusions: Re-Visiting Tweets as Strategic Signals

Since its creation in 2006, Twitter has become an important forum for political discussion. Nearly fifteen years later, it is frequently used by candidates for office across all levels of government in America and abroad. Along with other social media platforms like Facebook and Instagram, there was speculation that they would offer campaigns and representatives a method to more easily reach directly to voters. Some suggested that given the opportunity, constituents would respond in kind, leading to conversations online that would otherwise not occur. There were particular hopes that these platforms would generate more engagement from younger generations who are otherwise less involved in political activities. These hopes were furthered by narratives from candidates themselves, who suggested that they felt it was important to use and be active on social media platforms like Twitter to better reach their voters.

From a candidate's perspective, it can be beneficial to their chances of electoral success if voters like them and feel that their voices are heard when they reach out to the politician; to feel like their representative is a "good" person, representative, and party member. There are many reasons why we as a democratic society may desire voters to be closer in this way to their elected officials. It is a part of their job as members of Congress to represent their constituents' interests and be accountable to them. As representatives pursue this goal, we may expect them to use any and every tool available to them. In this way, Twitter should be especially appealing due to

its relative ease of use and cheapness compared to other methods of communication directed to voters, such as television advertisements or direct mailers.

If we think about the frequency that congressional campaigns tweeted during the 2018 election cycle, over 1.5 million times as shown in Figure 1.1 from Chapter 1, this may initially be taken as evidence of this desirable behavior. However, by critically evaluating this conventional wisdom, and despite these very real incentives, I have presented evidence that congressional campaigns do not use Twitter in this way. Though the campaigns do extensively use Twitter as a direct and unmediated form of communication to target audiences, they use it to strategically communicate to other political elites rather than to voters in their district.

7.1 Major Findings

This dissertation project provides one of the first in-depth studies of Twitter audience and the effectiveness of campaign tweet behavior. I asked and answered questions about who campaigns perceive their primary Twitter audience to be, what they actually say and see on the platform, assessed who their audience actually is, and finally found evidence that campaigns are successful at reaching (at least some) of their target audiences. I argue that, even compared to other types of social media, Twitter offers a unique communication tool to political actors. By expanding the focus on a campaign's use of Twitter from solely a direct link between politicians and voters to include the possibility of other audiences, I work to de-cloud the incomplete assumptions of previous work and provide evidence that a campaign's digital constituency is wider than we had first believed. Twitter is not a tool which enhances American democracy by strengthening the connection between voters and their representatives. Instead, it is a tool of elite political discourse.

7.1.1 Campaign Perceptions

Several analyses help to support these conclusions. I conducted interviews with congressional campaigns, as a theory-building exercise but also to learn who candidates and their staff perceive to be their primary audiences on Twitter, and presented my findings in Chapter 2. These discussions provided initial support for an alternative explanation of political Twitter use than was proposed in previous scholarship. They did not believe that their Twitter audience was mostly composed of voters from their district, and instead suggested that their audience on the platform was more likely to be composed of political elites including interest groups and activists, the media, and other politicians, as well as politically engaged individuals from across the country.

I developed a theory of strategic campaign communication, based on the importance of audience, detailed in Chapter 3. This theory draws on district features, partisanship, and competitiveness. It considers what different audiences, particularly the distinction between voters and interest groups, as a type of political elite, can offer campaigns and how a candidate can choose to present themselves to try and gain their support.

7.1.2 Campaign Actions

To systematically verify the beliefs of congressional campaigns and to study the use of Twitter by candidates who ran for office in the House, I scraped Twitter data to create several original data sets. This includes 2,025,565 tweets going back to 2007, 28,270,362 followers, and 3,229,624 friends. I exploit these data to provide an overview of what congressional campaigns have been doing on Twitter by training two supervised topic models to classify tweets and users by type as described in Chapter 4.

Campaigns tweeted thousands of times per day over the course of the election cycle. I classified candidate tweets as either national or local, following from what I learned in the interviews with the candidates and insights developed in Chapter 3. Most tweeted more frequently about their campaign and its activities than they did national political topics, though in future work I will delve deeper than this dichotomy into what they say in their posts.

Though their tweets are publicly available to anyone who wants to see them, a campaign's followers are one of the few pieces of information that they have to inform their understanding of who is most likely to see their tweets. I classified Twitter users who followed or were followed by candidates as an elite or non-elite. Overall, candidates follow many less Twitter accounts than follow them. A much higher proportion of their friends were classified as elites than their followers; for most campaigns, a quarter of their followers or fewer were labeled as political elites. Additionally, I labeled each friend and follower by whether they came from the same state as the candidate and found that for most of these users this was not the case. Taken together, this classification suggests that most of the users who congressional campaigns chose to follow on Twitter, and those who followed them, were not likely to be voters from their state, let alone their district.

Of course, most campaigns do not have access to this type of evidence. Even if they did, it is possible that they would still choose to craft the content of their posts for their voters *just in case* they saw it. I assess this possibility by leveraging the shock of the February 2018 Pennsylvanian redistricting in Chapter 5. This offers a way to see whether campaigns, when faced with a sudden, and sometimes substantial, change in the voter composition of their district less than three months before their primary election, made a corresponding change in their tweet content to better appeal to their new voters. I found no evidence that this was the case, and theorized that there were at least three potential explanations for the non-significant results

found: 1) campaigns are not purposefully speaking to a specific audience when they tweet, 2) that they are targeting voters but are ineffective at doing so, or 3) they are communicating to someone else.

Given insights from the interviews in Chapter 2 and descriptive trends in campaign tweet behavior in Chapter 4, I discounted the first two explanations and considered the last in Chapter 6; do congressional campaigns use their Twitter accounts to communicate to other political elites? I chose to focus on interest groups and their ability to make financial contributions to a campaign. Like tweets, contributions occur frequently throughout the course of an election cycle. Focusing on three issue areas, agriculture, labor, and LGBTQ, I found that these groups and campaigns follow and mention each other on Twitter. More importantly, I also found evidence of an aggregate relationship between a candidate's tweets on a topic and contributions received from groups and activists who work in that area. Notably, this exists beyond common explanations for contribution behavior, such as party, incumbency, and committee membership. I also found evidence that for one issue area, labor, there is a causal relationship between candidate tweets on the topics and contributions received. Taken together, these results suggest an allyship that is signaled on Twitter to interest groups and activists beyond other pieces of information that the groups may know or assume about a candidate.

7.1.3 Directions for Future Research

I found evidence of a relationship between contributions and tweets in a handful of issue areas, and I suspect that this trend would remain for other policies as well. However, this still doesn't fully describe all congressional campaign Twitter behavior. I found in Chapter 4 that a majority of tweets are not about national topics— it is unclear why campaigns make those tweets when they know their voters are unlikely to see them. It might be the case that interest groups and activists are not the only

type of political elite who campaigns communicate with on Twitter; tweets may also be used as a tool to attract media coverage and the attention of voters outside of the district. Whether considering other ways to signal to interest groups, or how to reach journalists or voters outside of a candidate's district, there are several additional ways to consider campaign messages.

Not Posting at All (i.e. Saying Nothing)

The focus of analysis in this project has been on what campaigns post. However, one alternative option available to them is to strategically not post at all. Not posting can be meaningful, manifesting in a desire to avoid political costs by alienating some potential audiences or generating negative news coverage, either of which could result in a decrease of support. What is costly for the candidate here is not the act of posting (as the service is free), but the potential fallout that may occur if the position taken is unpopular with constituents or other audiences. A candidate also does not want to waste her time and the attention of these supporters, and will therefore be strategic about whether to tweet, when to tweet, and what to tweet about, focusing on those strategies which hold the most potential to be useful for her campaign.

Who (& What) a Campaign Chooses to Re-Tweet & Mention

Another source of information about campaign decision-making on Twitter are re-tweet patterns. Choosing to share a post made by a nationally prominent political figure, celebrity, or organization, or about a nationally salient topic may offer potential benefits. It is a way for the candidate to incorporate herself into broader discussions and be in contact, and conflict, with other political elites on the platform. It may also be a way to piggyback on these other figures and topics to gain attention and support from activists and other engaged individuals nationwide. For many campaigns, mentioning President Trump (whether positively or negatively) is a popular way to do this. Similarly, one campaign manager that I interviewed discussed how he

re-tweeted prominent figures from within his political party to try and gain campaign contributions from Twitter users from across the country. This offers another way that campaigns may seek real-world benefits from their tweets.

Issue Ownership

There are additional ways in which a campaign can seek to signal a willingness (or aversion) to speak to audiences and voters "across the aisle". One is issue ownership, which is the idea that Democrats and Republicans each have greater (perceived) levels of competence over certain issues. For example, Democrats are seen to "own" issues such as the environment or the welfare state, while Republicans are seen to "own" issues such as business and national defense. A Republican (or Democrat) who focuses on owned issues is seeking the attention and support of the same audiences that would be the target with a more national focus, while a Democrat (or Republican) who makes a case that they are credibly competent about issues "owned" by the other party is working to be seen as more appealing to a wider range of voters. This is something I can consider as I introduce more detail and nuance into tweet topic classification.

7.2 Implications

The findings presented here hold implications for our understanding of the impact of Twitter on democratic features of American politics, as well as both the American institutions and behavior literatures. If Twitter is a space where political elites speak to each other, then we should also consider what that means for our concepts of political discourse and campaigns. Is it good for our democracy if they are part of a public echo chamber? Is it possible that Twitter is not enhancing democracy by providing additional accountability and representativeness, but actually making it worse? What does this mean for the members of the public who are present on

Twitter and observe this behavior? Is Twitter representative of real-life? How should the media cover politicians' tweets? What effect does it have on polarization and party politics?

What I have presented suggest that the distinction between public and private communications and transparency in government may be more nuanced with new technologies like Twitter. Initial perceptions and predictions in the literature suggested that social media sites, such as Twitter, would offer an avenue through which politicians could communicate directly to voters (Gainous and Wagner 2014), though previously in Chapter 5 I provided evidence that this is not necessarily the case. The results here are suggestive that congressional campaigns may gain benefits from interest groups by communicating directly to them on Twitter.

One hope for Twitter (and social media generally) was that if it provided a place for regular people and political actors to directly communicate and provide information to each other, it would help our political system to be more democratic as politicians and the voters who have (or could) put them into office would be closer to each other. This initial, suggestive evidence that public interactions on Twitter between campaigns and interest groups led to tangible, real world effects for campaigns might similarly be a positive for our democracy— it could be that behaviors which previously occurred most frequently behind closed doors are beginning to occur more out in the open on a public platform. At the very least, these results suggest that more study of the relationship between campaigns and organized interests, and money in politics, should consider these communication channels.

From the perspective of political actors, these results suggest that Twitter may be a valuable space where they can gain real-world, offline benefits like donations to their campaign or cause. Future work may be able to provide more tangible suggestions about the types of tweets that are most successful and effective at fundraising. Though this dissertation focuses on candidates running for the U.S. House, the platform offers

similar possibilities to candidates running for other federal offices, as well as at the state and local level, particularly as increasing numbers of candidates and voters turn to the idea of grassroots campaigns. It is also not limited to politicians— interest groups and non-profits may be able to use Twitter to make appeals to their supporters in similar ways.

These results also suggest the potential positive influence of new communication technologies on representation. Due to its capacity to reach a range of audiences, especially political elites, Twitter may lower the bar of entry into the political process for non-traditional candidates up and down the ballot. Do new technologies, which are less prohibitively expensive than other types of communication like television ads, lower the threshold for candidate entry? If so, what is the effect on who chooses to run for office, and how they run? Are there differences across the race and gender of candidates, and how will this affect who runs and who is elected in the future? Twitter is the latest of several technological innovations in campaign communication. What will be the continued role of existing methods of communication, such as TV ads or direct mail? What will campaigns do in 2020, and even 2022, with COVID-19? In the future, online and virtual communication tools may become even more appealing by necessity.

A finding from my interviews with congressional candidates and their staff is that they perceive fundamentally different audiences to be present on, for example, Twitter and Facebook. If campaigns use Twitter to communicate to other political elites, they may use Facebook to reach out directly to voters in their districts. Are some platforms better than others at providing a space for voters to have increased access to their representatives? The framework presented here should hold with other communication methods directed to voters. Normatively, we hope that politicians are responsive and representative of their constituents— if not Twitter, hopefully elsewhere.

Appendix A Appendix

A.1 Additional Information about Interviews

A.1.1 Conducting the Interviews

Of the campaigns that I sampled to attempt to contact, about 55 were (then) current Representatives and the remaining 245 were challengers. For these 300 candidates, I individually looked up email addresses, phone numbers, and addresses where I could potentially send letters. For many challengers, I was not able to find their contact information.[1]

For the approximately 65% of emails that I could find, I sent an IRB-approved invite to participate in an interview. Most emails either bounced or I never received a response. I received over 30 replies— 10 resulted in completed interviews, another 10 stated that they did not want to participate, and 10 expressed interest but then did not respond to my follow-ups to set up a time to speak. When the email addresses didn't work, I attempted to contact the campaigns by phone, but few had phone numbers on their websites. Those that I was able to call were suspicious of me and either said no outright or never called me back to follow up. I did not send letters to challengers; few had addresses that I could find.

For incumbents, if they had a campaign website with a campaign email I attempted to contact them through that channel first, though this was relatively rare.[2]

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[1]Many of the sampled challengers did not have an active website; depending on the candidate, it was not always clear whether this was because they never had one or that by September 2018 they had lost in the primary or dropped out of the race and stopped paying for their domain and maintaining their website.

[2]The House website shuttles you to your home district representative, so I was not able to email representatives on their official emails.

I also attempted to call the incumbents; if I was able to find a campaign office phone number I prioritized that over their office in Washington D.C. The offices were generally suspicious of me and my "true" intent; they were dubious that I was a researcher. Unfortunately none of the phone calls led to a completed interview, though I did receive a job offer from a (confused) staffer from the campaign office of a nationally-known representative. As a final effort to contact incumbents, I sent a letter on Emory Department of Political Science letterhead to the representative's office in Washington D.C. The letters contained a hard copy of the emails that I sent to campaigns and my contact information. Of the 55 letters that I sent, I only received one response— that the representative would not be able to speak with me.

A.1.2 Interview Questions

If Staff: How did you get into campaigns?
If Candidate: When did you decide to run for office?

If Staff: What is your previous experience with campaigns?
If Candidate: What is your previous experience with campaigns or running for office?

If Staff: What is your title and role within the _____ campaign?

When did you first use social media personally? When did you first use it for a campaign?

What communication (especially social media) platforms does your campaign use?

- Why do you make the communication choices that you do? (e.g. for electoral purposes)

- How do you make these choices?

    - Are you influenced by yours or colleagues' work on other campaigns?

    - Do you do so because it is expected of you?

- Do you consider the social media strategies of your opponents or campaigns which you see as similar to yours?

- Do you use the services of a strategy firm?

Who is in control of messages/posts (in terms of rhetoric, content, timing, platform) within your campaign?

What are your main goals with your social media accounts?

Do you see pros or cons to different communication methods?

- Do you think about the publicness of the type?

- Do you think that media/IGs/political actors look at your online posts?

- Are you concerned about trolls/criticism online?

  – If YES: Do you take any measures to avoid/minimize these concerns?

How representative would you say your campaign communication choices are compared to other campaigns?

Do you think the use of online communication methods has changed over time (especially in the last 5 years) (what about compared to 2016? 2014?)?

- Has it changed from a platform to simply share the same messages to a place to post new/different things?

- Is it different in the age of Trump?

What is your expected/most likely audience for campaign's messages online?

- i.e. voters vs. media vs. interest groups vs. political actors

- Is this the same or different than your "dream" or ideal audience?

Do you think the same people see your posts across multiple communication platforms?

Do you think your social media posts change constituent opinions?

Do you think your social media posts change constituent behavior?

Are your political communications ever covered in news media?

Do you make a point to re-tweet/re-post other politicians' posts? Do others do the same to you?

A.2   Considering Blank Descriptions

Figure A.1: Distribution of proportion of elite-classified followers by candidate. Followers with blank descriptions are included as non-elites.
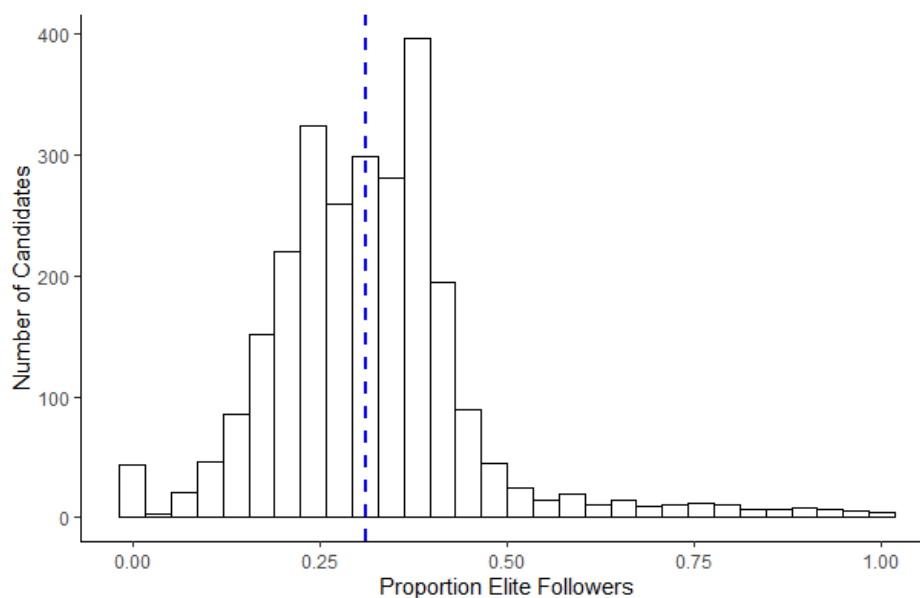
Figure A.2: Distribution of proportion of elite-classified followers by candidate. Followers with blank descriptions are included as elites.
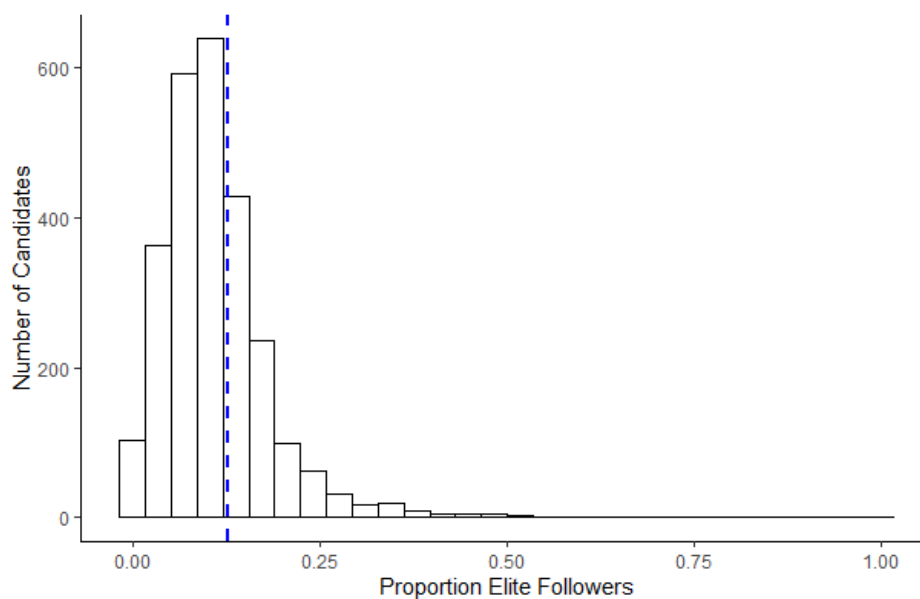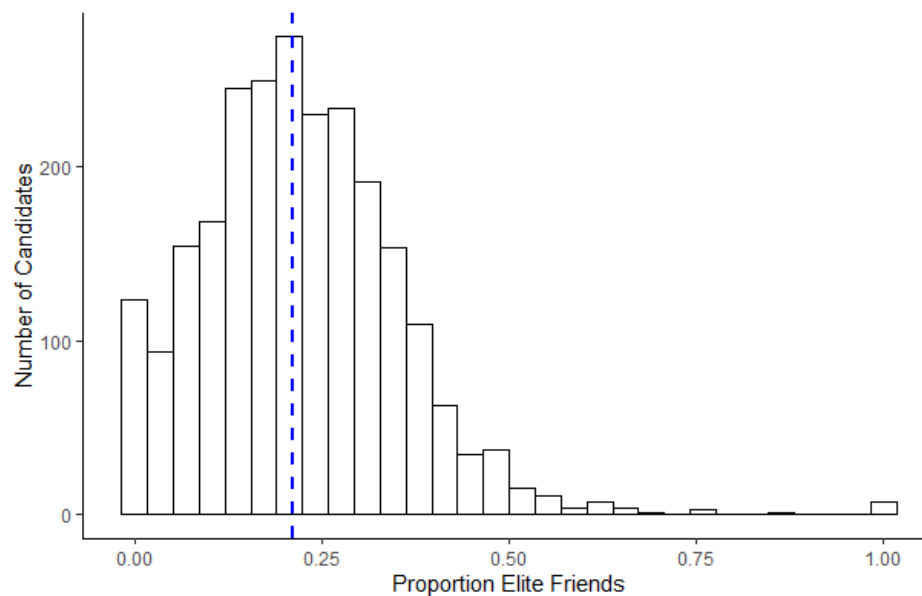
Figure A.3: Distribution of proportion of elite-classified friends by candidate. Friends with blank descriptions are included as non-elites.
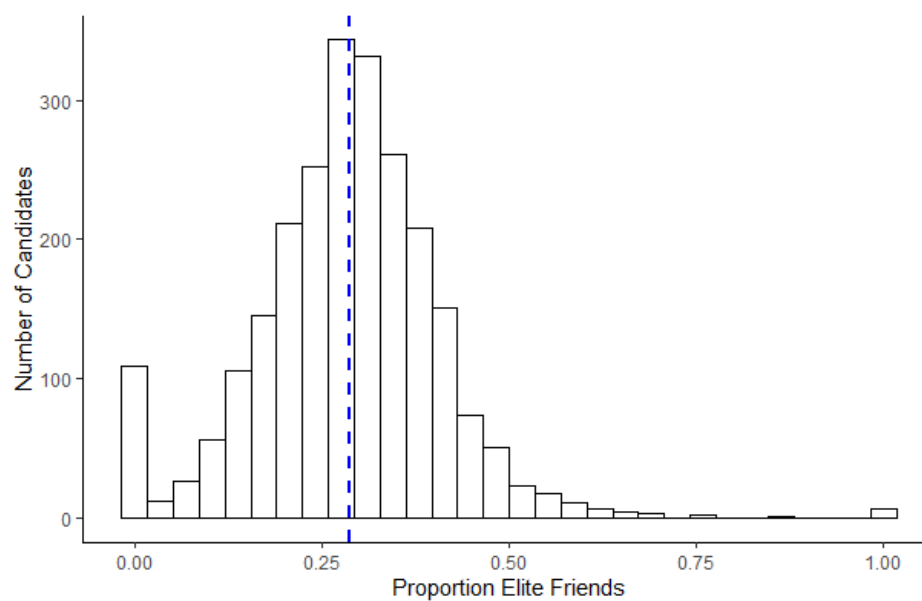
Figure A.4: Distribution of proportion of elite-classified friends by candidate. Friends with blank descriptions are included as elites.

Figure A.5: Distribution of proportion of followers in candidate's state. Followers with blank descriptions are included as not from the candidate's state.

Figure A.6: Distribution of proportion of followers in candidate's state. Followers with blank descriptions are included as from the candidate's state.
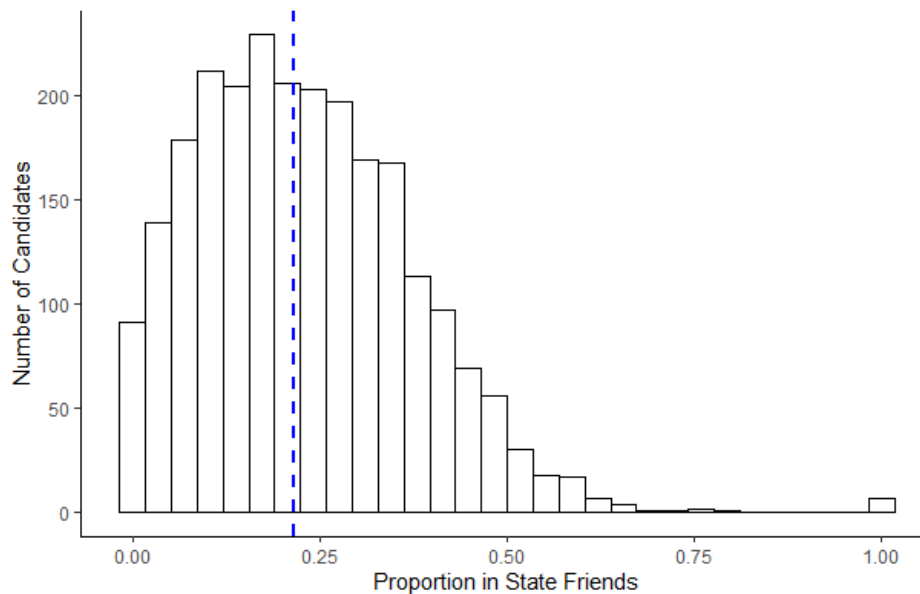
Figure A.7: Distribution of proportion of friends in candidate's state. Friends with blank descriptions are included as not from the candidate's state.
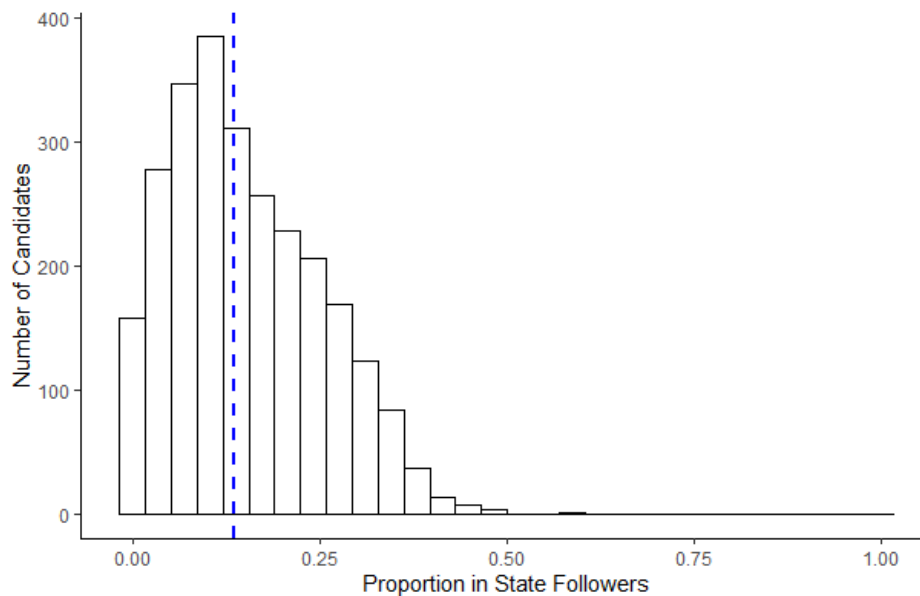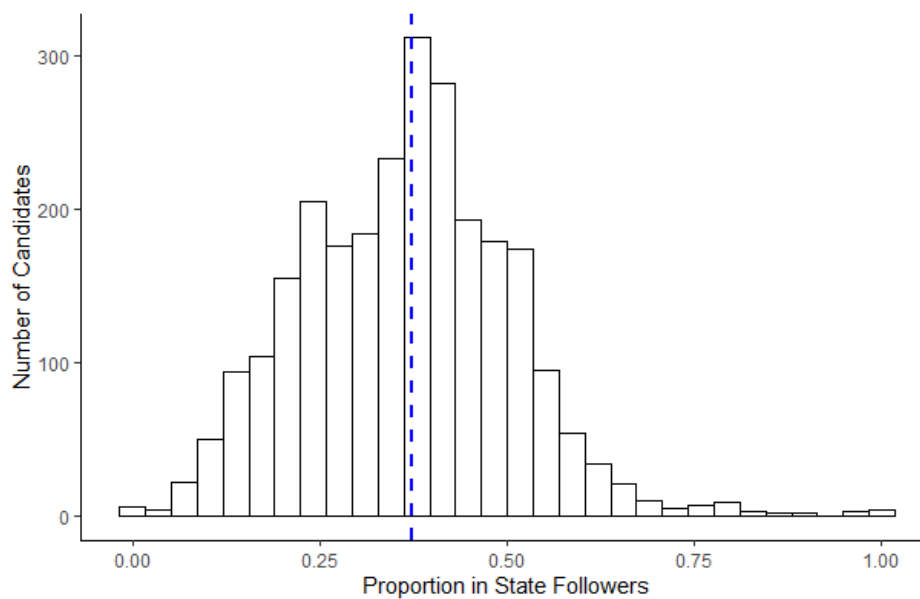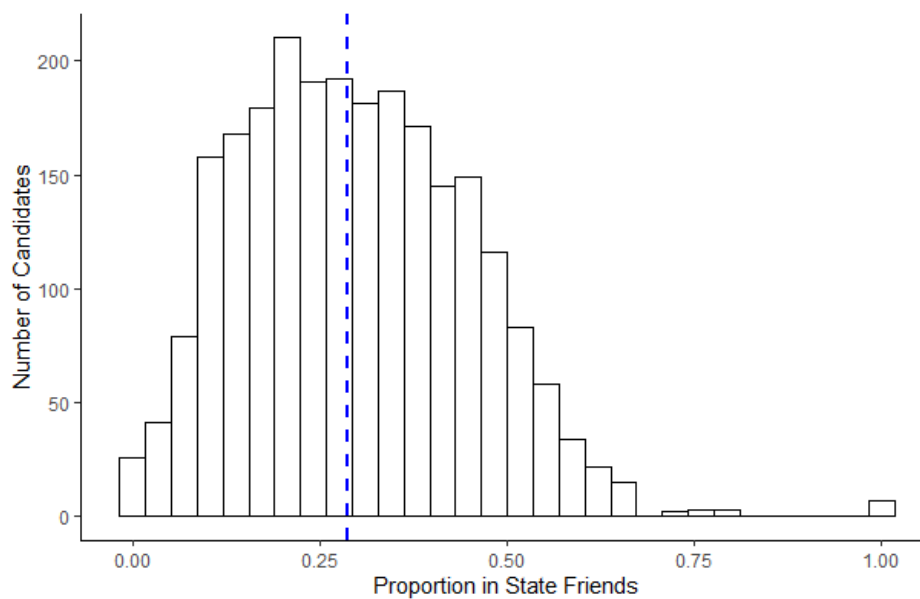

Figure A.8: Distribution of proportion of friends in candidate's state. Friends with blank descriptions are included as from the candidate's state.

A.3 Changing Audiences, Changing Messages?

A.3.1 Placing Candidates in Districts Pre- and Post-Redistricting

I had already collected the names and districts of candidates who had entered the race by December 2017 so I knew their initial district. After the new maps were released and candidates were placed into their new districts, I knew the final district of a (slightly different) group of candidates who had registered to run by March 2018. I was able to use the fact that many candidates did not immediately change the district information on their websites and social media accounts for some time after the new maps were released to check their old district. Ballotpedia also had a list of candidates running in each district, and whether the candidate later withdrew or not, which I used to compile the final list of 113 candidates. In order to fill in the final gaps of this master list with original and new districts, I searched for every candidate individually online. For most candidates, there were articles in the local newspaper about the candidate's district changing.

A.3.2 Proportion of National Tweets vs. District Competitiveness
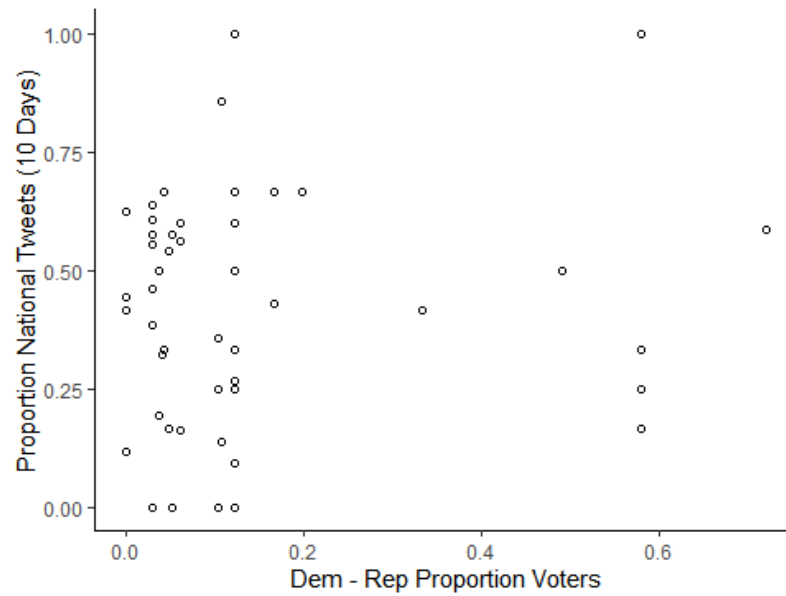
Figure A.9: Plot of proportion of national tweets by district competitiveness 10 days pre-redistricting.
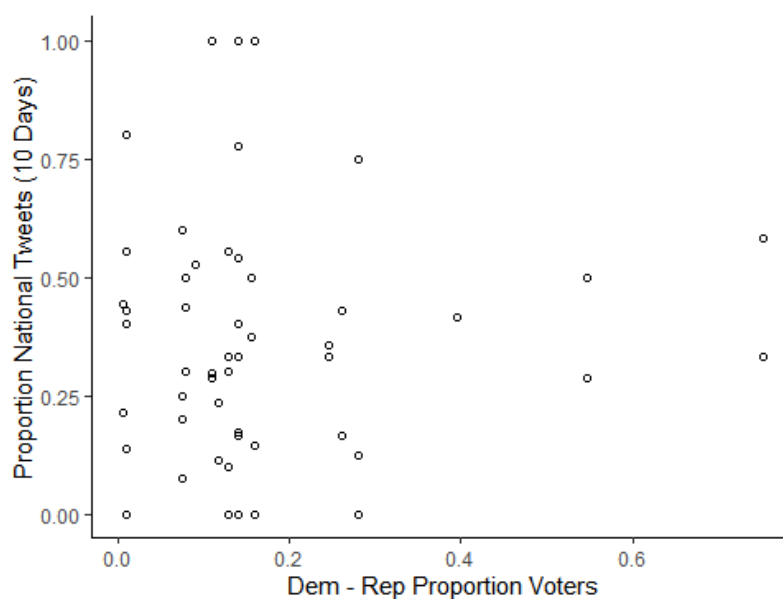
Figure A.10: Plot of proportion of national tweets by district competitiveness 10 days post-redistricting.
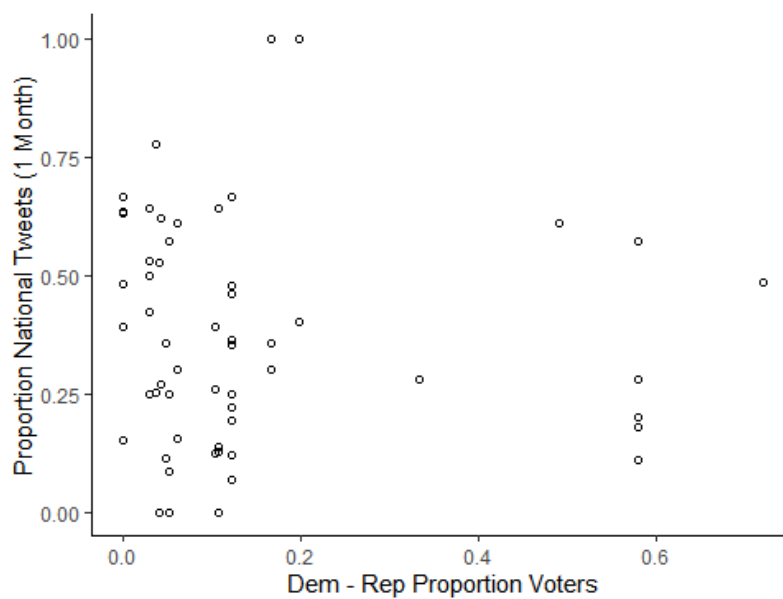
Figure A.11: Plot of proportion of national tweets by district competitiveness 1 month pre-redistricting.
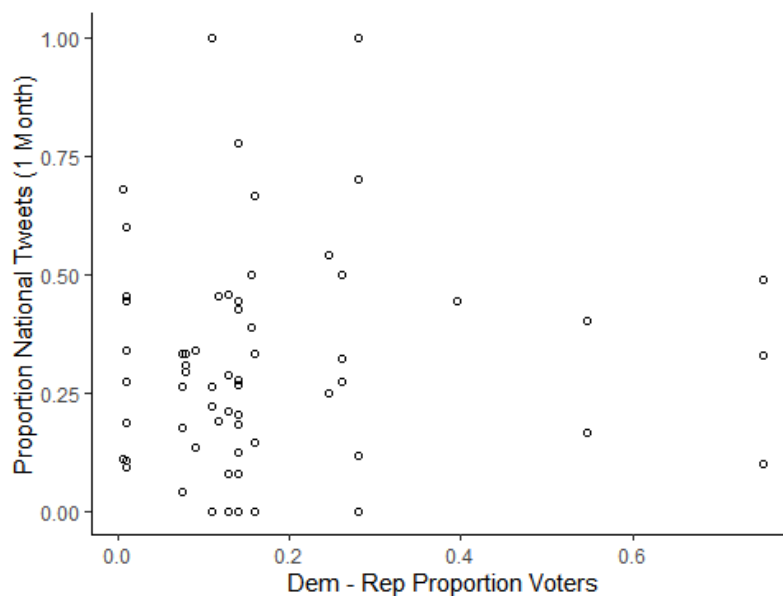
Figure A.12: Plot of proportion of national tweets by district competitiveness 1 month post-redistricting
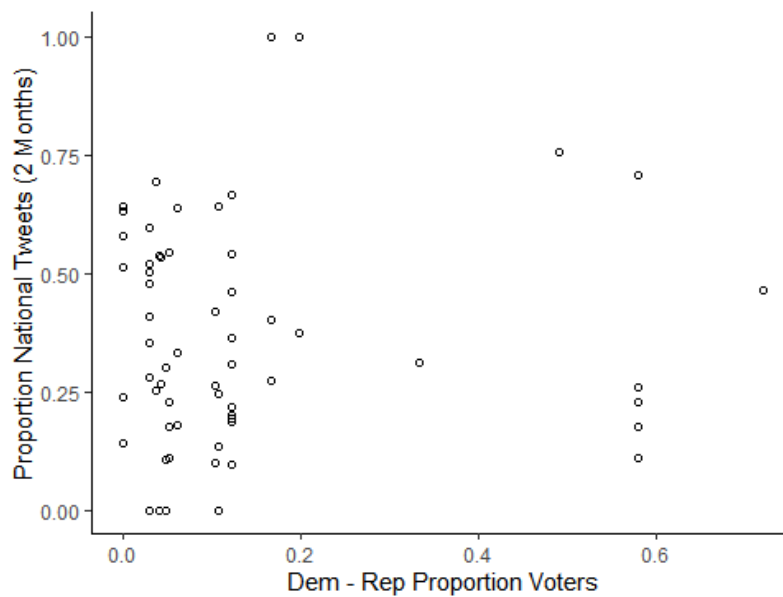
Figure A.13: Plot of proportion of national tweets by district competitiveness 2 months pre-redistricting.
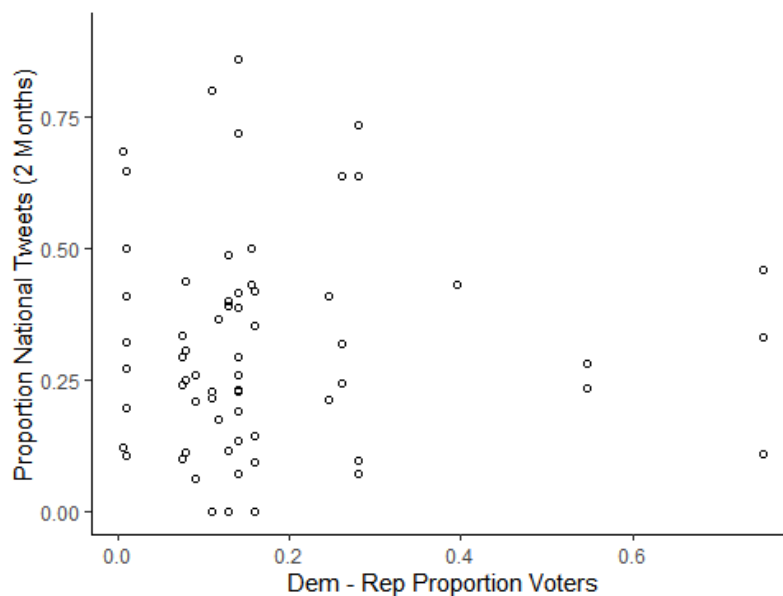
Figure A.14: Plot of proportion of national tweets by district competitiveness 2 months post-redistricting.

A.3.3 Tweet Frequency During 3 Time Periods
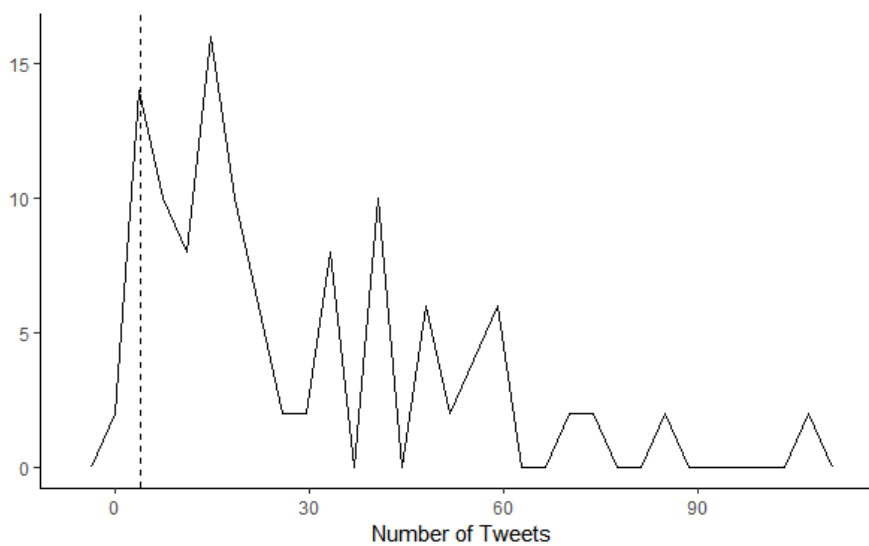
Figure A.15: Frequency of candidate's tweets in 10 day time band. Dashed vertical line shows cut-off.
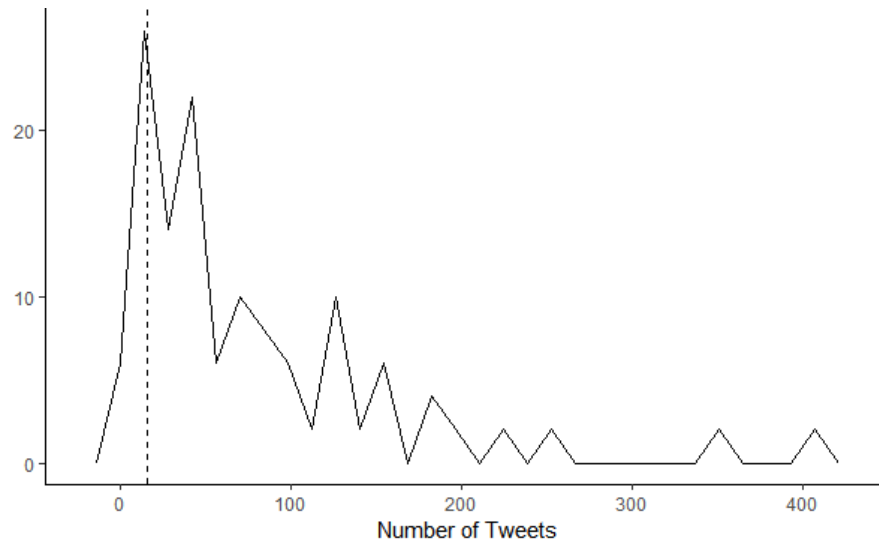
Figure A.16: Frequency of candidate's tweets in 1 month time band. Dashed vertical line shows cut-off.
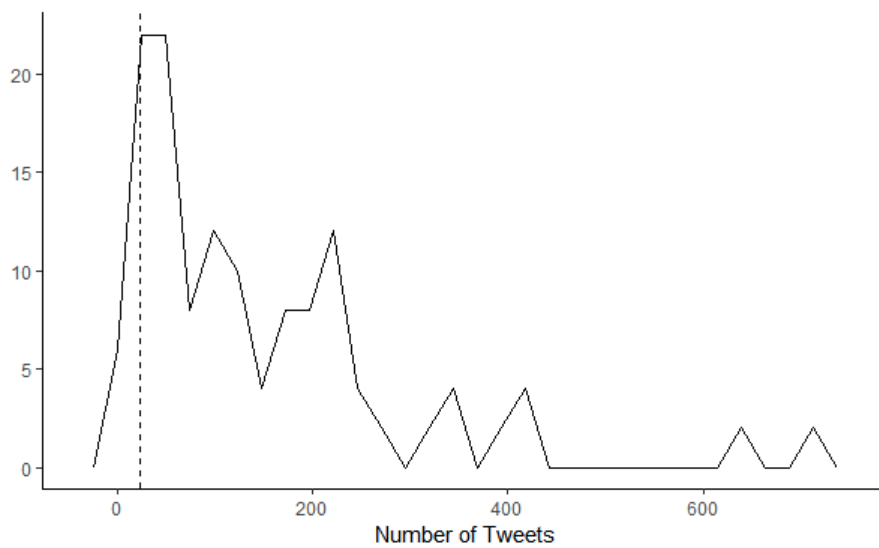
Figure A.17: Frequency of candidate's tweets in 2 month time band. Dashed vertical line shows cut-off.

A.3.4 Additional Difference-in-Differences Results
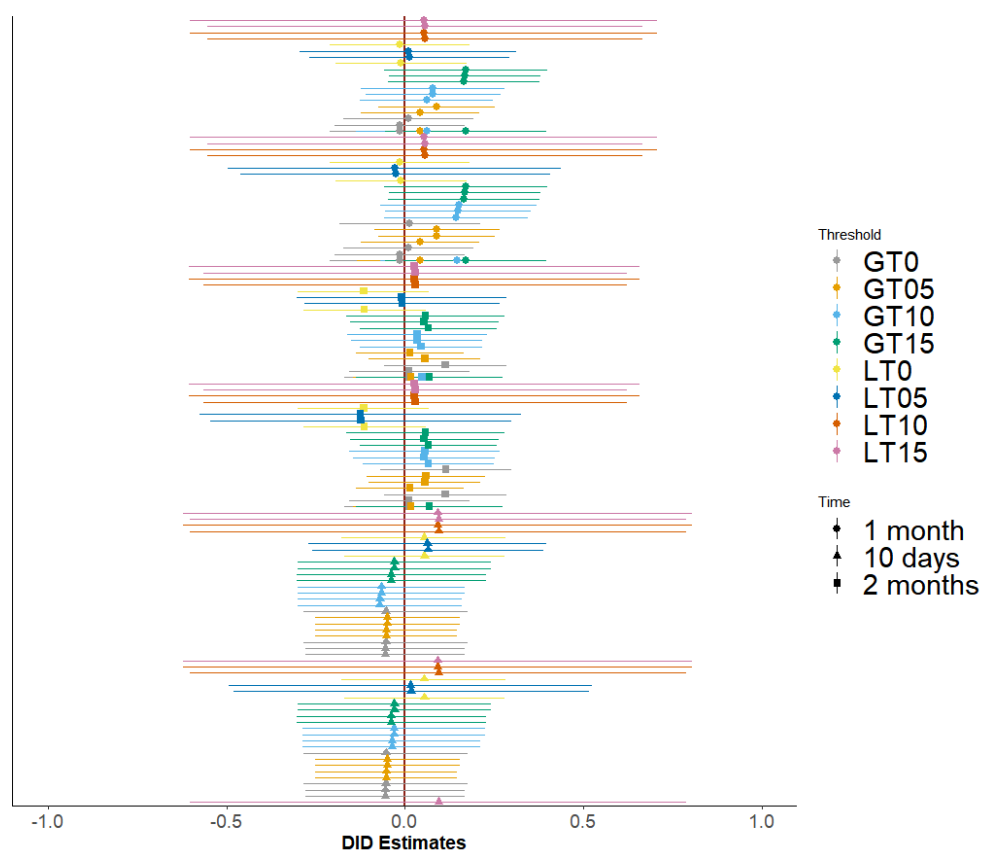
Figure A.18: Estimates of the difference-in-difference coefficients from models including all active accounts with the treatment measured as a discrete level of change in district competitiveness. Includes models with 10 day, 1 month, and 2 months thresholds, with and without controlling for incumbency status, with and without the least frequent tweeters, and with and without the inclusion of "Other" voters.
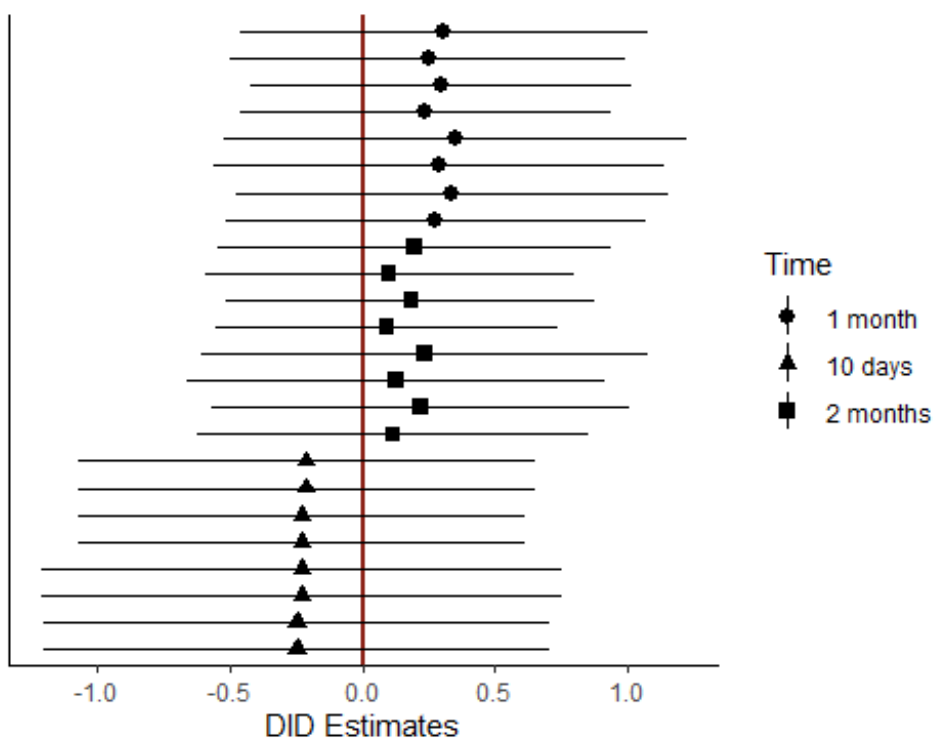
Figure A.19: Estimates of the difference-in-difference coefficients from models including all active accounts with the treatment measured as the continuous change in district competitiveness. Includes models with 10 day, 1 month, and 2 months thresholds, with and without controlling for incumbency status, with and without the least frequent tweeters, and with and without the inclusion of "Other" voters.
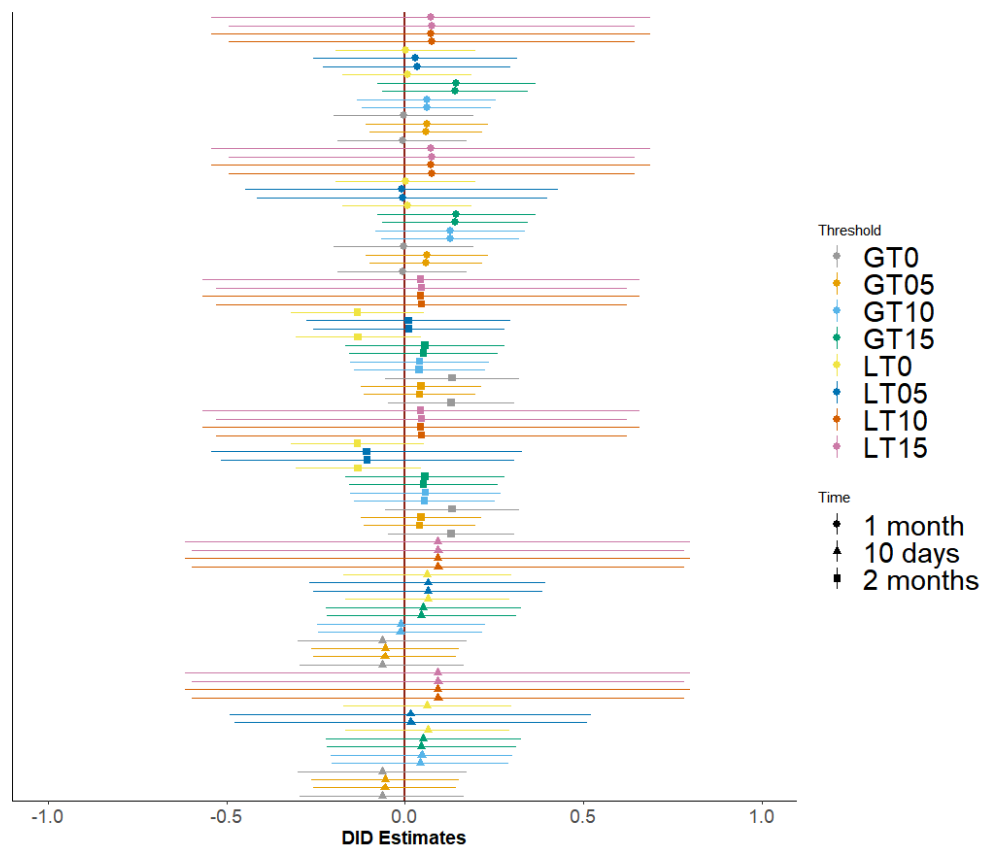
Figure A.20: Estimates of the difference-in-difference coefficients from models including all active accounts who raised \$10,000 or more with the treatment measured as a discrete level of change in district competitiveness. Includes models with 10 day, 1 month, and 2 months thresholds, with and without controlling for incumbency status, and with and without the inclusion of "Other" voters.
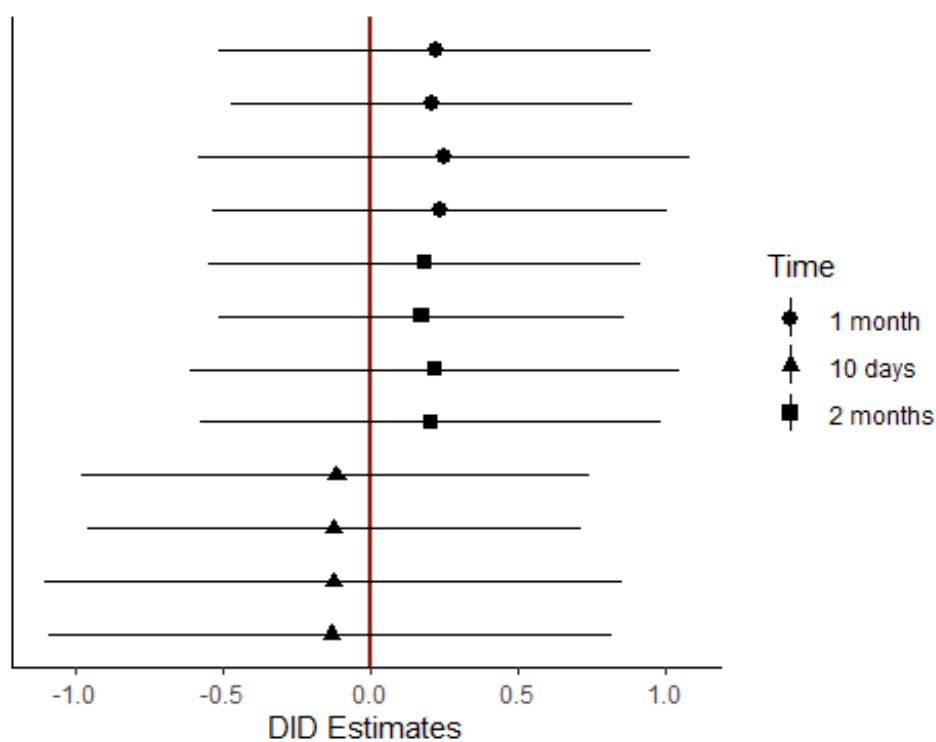
Figure A.21: Estimates of the difference-in-difference coefficients from models including all active accounts who raised $10,000 or more with the treatment measured as the continuous change in district competitiveness. Includes models with 10 day, 1 month, and 2 months thresholds, with and without controlling for incumbency status, and with and without the inclusion of "Other" voters.

A.4 Money Please!

A.4.1 Constructing the Dictionaries

The first part of each dictionary is a list of the Twitter handles of relevant interest groups to that topic, which I compiled using multiple sources. The first of these are Vote Smart lists of special interest groups.[3] I collected the names of all groups from several categories of interest for agriculture[4], labor and business[5], and LGBTQ[6] groups and searched for each organization's Twitter handle. Other agriculture group names also came from Wikipedia[7]. Additional labor group sources include Wikipedia[8], Pro Publica[9], Open Secrets[10], Union Facts[11], FindLaw[12], and the AFL-CIO's list of its affiliated groups[13]. Finally, additional LGBTQ group sources include: Open Secrets[14], United Steelworkers[15], Diversity Best Practices[16], Wikipedia[17], Every Action[18], GLADD[19], and the Southern Poverty Law Center[20].

To gain further coverage of these types of groups I also searched for Twitter Lists on these topics and included the handles of any additional group pages included in

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[3]The main page is `https://votesmart.org/interest-groups`, and also includes links to endorsements by the groups included.

[4]Agriculture and Food

[5]Business and Consumers; Employment and Affirmative Action; Labor Unions

[6]Civil Liberties and Civil Rights; Marriage; Marriage, Family, and Children (limited to groups focused on LGBTQ issues); Sexual Orientation and Gender Identity

[7]`en.wikipedia.org/wiki/List_of_agricultural_organizations`

[8]`en.wikipedia.org/wiki/List_of_labor_unions_in_the_United_States`

[9]`projects.propublica.org/represent/lobbying/topics`

[10]`www.opensecrets.org/industries/indus.php?ind=LT100`

[11]`www.unionfacts.com/cuf/`

[12]`employment.findlaw.com/wages-and-benefits/list-of-us-labor-unions.html`

[13]`aflcio.org/about/our-unions-and-allies/our-affiliated-unions`

[14]`www.opensecrets.org/industries/indus.php?ind=J7300`

[15]`www.usw.org/act/campaigns/rtw/resources/who-is-behind-these-anti-worker-bills`

[16]`www.diversitybestpractices.com/news-articles/22-lgbt-organizations-you-need-know`

[17]`en.wikipedia.org/wiki/List_of_LGBT_rights_organizations_in_the_United_States`, `en.wikipedia.org/wiki/Intersex_civil_society_organizations`, and `en.wikipedia.org/wiki/List_of_transgender-rights_organizations`

[18]`www.everyaction.com/blog/10-awesome-lgbtq-organizations-you-should-support-pride-month`

[19]`www.glaad.org/resourcelist`

[20]`www.splcenter.org/fighting-hate/intelligence-report/2010/18-anti-gay-groups-and-their-propaganda`

those that I did not already have from Vote Smart or the other sources listed above. Twitter Lists are "curated group[s] of Twitter accounts" (Twitter Help) which any user can create and maintain. These Lists are searchable and can be shared with URLs (if public), and each as its own timeline with tweets only by those accounts included in the List. From the perspective of the person or organization creating the List, they do not have to follow the users they are adding. When a Twitter user is added to a public List, they are notified about it. In the case of an interest group adding a member of Congress to a List, this can be a signal that the group is interested in that member's posts and online behavior.[21] This awareness is not the case for private Lists, where the users who are included in the List likely have no idea that this is the case and that they are included. For both public and private Lists, you cannot remove yourself from someone else's list; if you do not want to be on it, you have to block them (which may not be a move you want to make).

When the Vote Smart and Twitter Lists are combined, along with the other additional sources listed, within each dictionary there are 373 unique labor groups, 322 agriculture groups, and 221 LGBTQ groups, as shown in Table 6.5. Examples of labor groups include the AFL-CIO (American Federation of Labor and Congress of Industrial Organizations), the American Federation of Government Employees, and the Consumer Federation of America. Agricultural groups include the American Farm Bureau (both national and state accounts), the National Council of Agricultural Employers, and the ABA (American Bakers Association). LGBTQ groups include the Human Rights Campaign, the Log Cabin Republicans, PFLAG (Parents, Families and Friends of Lesbians and Gays), and the American Family Association.

The next component of the dictionaries is the legislation number of relevant roll call votes during the time period of tweet coverage that I have (from 2015 to 2018).

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[21]Though not something examined systematically in this paper, in the course of this data collection I found evidence that this is a strategy being used by at least some organizations. For example, the American Farm Bureau (FarmBureau) has a public list on its account of nine members of the House Agriculture Biotech (Sub)committee.

These are likely to be some of the most important pieces of legislation to interest groups in these issue areas.[22] This is in an effort to capture discussion of relevant legislation— perhaps one of the most powerful and meaningful signals an incumbent can send to an interested interest group of their support for issues that are important to them both. For labor and agriculture votes, I used the Congressional Roll Call Voting dataset from the Comparative Agendas Project[23] and selected sub-topics relevant to these two issue areas.[24] I attempted to follow the same procedure for LGBTQ issues, but there was not a clearly applicable sub-topics; instead, I searched for the term "LGBT" on *congress.gov*. These results include roll call votes and bills. As shown in the second row of Table 6.5, this includes 68 pieces of legislation around labor issues, 56 around agricultural issues, and 15 around LGBTQ issues.

The final piece of each dictionary are additional words that I added which are related to the topic but not otherwise captured by group handles or legislation numbers. They are included in the bottom row of Table 6.5. I searched for both uppercase and lowercase occurrences of these words.

A.4.2 Additional Results

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[22]Wawro 2001 uses the bills used by prominent groups (such as the AFL-CIO) in their assessment of members of Congress as those which are the most important to groups active in an area– I could assess/add using a similar method.

[23]https://www.comparativeagendas.net/datasets_codebooks

[24]For agriculture, these were: 400, 401, 402, 403, 404, 405, 408, 498, and 499. For labor, these were: 103, 500, 501, 502, 503, 504, 505, 506, 529, 599, 1802, and 2004.

Number of Agriculture Contributions

	Overall		Non-Individuals		Overall		Non-Individuals	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Tweeted on Ag	13.627*** (1.239)	4.256*** (1.151)	8.158*** (0.787)	2.034*** (0.730)				
Num Ag Tweets					0.299*** (0.019)	0.156*** (0.017)	0.201*** (0.012)	0.117*** (0.011)
Party		8.381*** (1.027)		5.129*** (0.651)		7.696*** (1.001)		4.759*** (0.630)
Incumbent		18.508*** (1.258)		13.537*** (0.798)		18.364*** (1.195)		13.050*** (0.752)
On Ag Comms		13.339*** (1.238)		8.706*** (0.785)		12.565*** (1.222)		8.028*** (0.768)
% Dist in Ag		0.001*** (0.0001)		0.001*** (0.0001)		0.001*** (0.0001)		0.001*** (0.0001)
Constant	1.719* (1.036)	1.164 (4.278)	0.731 (0.658)	3.488 (2.715)	8.262*** (0.585)	3.189 (4.145)	4.426*** (0.368)	4.226 (2.607)
State FE		Yes		Yes		Yes		Yes
Observations	2,288	2,244	2,288	2,244	2,288	2,244	2,288	2,244
R^2	0.050	0.356	0.045	0.360	0.098	0.375	0.110	0.390
F Statistic	121.041***	22.381***	107.501***	22.799***	247.017***	24.323***	282.725***	25.942***

Note: *p<0.1; **p<0.05; ***p<0.01

Table A.1: Regression results where the dependent variable is the number of agriculture contributions.

Logged Amount of Agriculture Contributions

	Overall		Non-Individuals		Overall		Non-Individuals	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Tweeted on Ag	3.785***	1.838***	3.319***	1.127***				
	(0.205)	(0.182)	(0.197)	(0.148)				
Num Ag Tweets					0.038***	0.013***	0.036***	0.010***
					(0.003)	(0.003)	(0.003)	(0.002)
Party		0.698***		1.020***		0.457***		0.870***
		(0.162)		(0.132)		(0.164)		(0.132)
Incumbent		4.992***		6.228***		5.463***		6.496***
		(0.199)		(0.162)		(0.196)		(0.158)
On Ag Comms		2.503***		2.181***		2.562***		2.202***
		(0.196)		(0.160)		(0.200)		(0.161)
% Dist in Ag		0.00002		0.00002*		0.00003**		0.00002**
		(0.00001)		(0.00001)		(0.00001)		(0.00001)
Constant	1.398***	1.605**	0.609***	0.267	3.667***	2.774***	2.569***	0.973*
	(0.172)	(0.677)	(0.165)	(0.551)	(0.104)	(0.678)	(0.098)	(0.547)
State FE		Yes		Yes				
Observations	2,288	2,244	2,288	2,244	2,288	2,244	2,288	2,244
R^2	0.130	0.460	0.111	0.603	0.052	0.440	0.053	0.596
F Statistic	340.513***	34.532***	284.555***	61.528***	126.301***	31.867***	127.894***	59.764***

Note: *p<0.1; **p<0.05; ***p<0.01

Table A.2: Regression results where the dependent variable is the logged amount of agriculture contributions.

Number of Labor Contributions

	Overall		Non-Individuals		Overall		Non-Individuals	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Tweeted on Labor	17.792***	8.895***	16.857***	8.162***				
	(0.899)	(0.943)	(0.831)	(0.861)				
Num Lab Tweets					0.246***	0.144***	0.217***	0.117***
					(0.014)	(0.014)	(0.013)	(0.013)
Party		−15.805***		−14.094***		−15.582***		−14.065***
		(1.158)		(1.057)		(1.156)		(1.060)
Incumbent		26.087***		25.934***		27.956***		28.139***
		(1.472)		(1.343)		(1.370)		(1.255)
On Lab Comms		10.192*		10.712*		12.521**		12.761**
		(6.128)		(5.590)		(6.108)		(5.599)
% Dist in Manufacturing		−0.0002***		−0.0002***		−0.0002***		−0.0002***
		(0.0001)		(0.00005)		(0.0001)		(0.00005)
Constant	−4.265***	2.541	−4.357***	2.886	8.082***	9.272*	7.761***	9.131*
	(1.123)	(5.334)	(1.038)	(4.866)	(0.715)	(5.260)	(0.667)	(4.821)
State FE		Yes		Yes		Yes		Yes
Observations	2,285	2,241	2,285	2,241	2,285	2,241	2,285	2,241
R^2	0.146	0.346	0.153	0.367	0.117	0.350	0.106	0.365
F Statistic	391.801***	21.427***	411.437***	23.497***	302.474***	21.812***	269.905***	23.270***

Note: $^*p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$

Table A.3: Regression results where the dependent variable is the number of labor contributions.

Logged Amount of Labor Contributions

	Overall		Non-Individuals		Overall		Non-Individuals	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Tweeted on Labor	3.573***	1.701***	3.586***	1.702***				
	(0.142)	(0.145)	(0.143)	(0.145)				
Num Lab Tweets					0.040***	0.018***	0.040***	0.018***
					(0.002)	(0.002)	(0.002)	(0.002)
Party		−1.908***		−1.878***		−1.980***		−1.951***
		(0.179)		(0.178)		(0.182)		(0.181)
Incumbent		5.642***		5.703***		6.319***		6.386***
		(0.227)		(0.226)		(0.215)		(0.215)
On Lab Comms		1.488		1.514		1.876*		1.901**
		(0.945)		(0.943)		(0.960)		(0.957)
% Dist in Manufacturing		−0.00001		−0.00001		−0.00001		−0.00001
		(0.00001)		(0.00001)		(0.00001)		(0.00001)
Constant	0.299*	3.164***	0.206	3.104***	3.025***	4.497***	2.942***	4.438***
	(0.178)	(0.823)	(0.178)	(0.820)	(0.118)	(0.826)	(0.119)	(0.824)
State FE		Yes		Yes				
Observations	2,285	2,241	2,285	2,241	2,285	2,241	2,285	2,241
R^2	0.216	0.427	0.217	0.432	0.113	0.409	0.113	0.414
F Statistic	629.557***	30.198***	632.847***	30.767***	290.868***	28.049***	291.698***	28.552***

Note: *p<0.1; **p<0.05; ***p<0.01

Table A.4: Regression results where the dependent variable is the logged amount of labor contributions.

Number of LGBTQ Contributions

	Overall		Non-Individuals		Overall		Non-Individuals	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Tweeted on LGBTQ	1.820*** (0.228)	1.249*** (0.257)	1.132*** (0.158)	0.708*** (0.176)				
Num LGBTQ Tweets					0.058*** (0.009)	0.043*** (0.010)	0.033*** (0.006)	0.022*** (0.007)
Party		−0.997*** (0.261)		−0.617*** (0.179)		−1.240*** (0.247)		−0.769*** (0.169)
Incumbent		1.349*** (0.278)		1.215*** (0.191)		1.511*** (0.273)		1.316*** (0.187)
Constant	0.910*** (0.166)	0.810 (1.004)	0.783*** (0.114)	0.620 (0.689)	1.598*** (0.122)	1.387 (0.994)	1.226*** (0.084)	0.957 (0.682)
State FE		Yes		Yes		Yes		Yes
Observations	2,243	2,243	2,243	2,243	2,243	2,243	2,243	2,243
R²	0.028	0.063	0.022	0.072	0.018	0.061	0.012	0.070
F Statistic	63.567***	2.819***	51.434***	3.253***	39.997***	2.740***	26.697***	3.149***

Note: *p<0.1; **p<0.05; ***p<0.01

Table A.5: Regression results where the dependent variable is the number of LGBTQ contributions.

	Logged Amount of LGBTQ Contributions							
	Overall		Non-Individuals		Overall		Non-Individuals	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Tweeted on LGBTQ	1.686*** (0.156)	1.139*** (0.162)	1.297*** (0.153)	0.897*** (0.159)				
Num LGBTQ Tweets					0.052*** (0.006)	0.040*** (0.006)	0.040*** (0.006)	0.031*** (0.006)
Party		0.021 (0.165)		0.284* (0.162)		−0.196 (0.156)		0.112 (0.153)
Incumbent		3.365*** (0.176)		3.197*** (0.173)		3.510*** (0.172)		3.312*** (0.169)
Constant	1.599*** (0.113)	1.722*** (0.634)	1.524*** (0.111)	1.061* (0.623)	2.242*** (0.084)	2.246*** (0.628)	2.019*** (0.082)	1.474** (0.617)
State FE		Yes		Yes				
Observations	2,243	2,243	2,243	2,243	2,243	2,243	2,243	2,243
R^2	0.049	0.222	0.031	0.201	0.030	0.220	0.019	0.200
F Statistic	116.404***	12.022***	71.813***	10.609***	69.615***	11.864***	43.386***	10.505***

Note: $^*p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$

Table A.6: Regression results where the dependent variable is the logged amount of LGBT contributions from LGBTQ organizations and individuals.
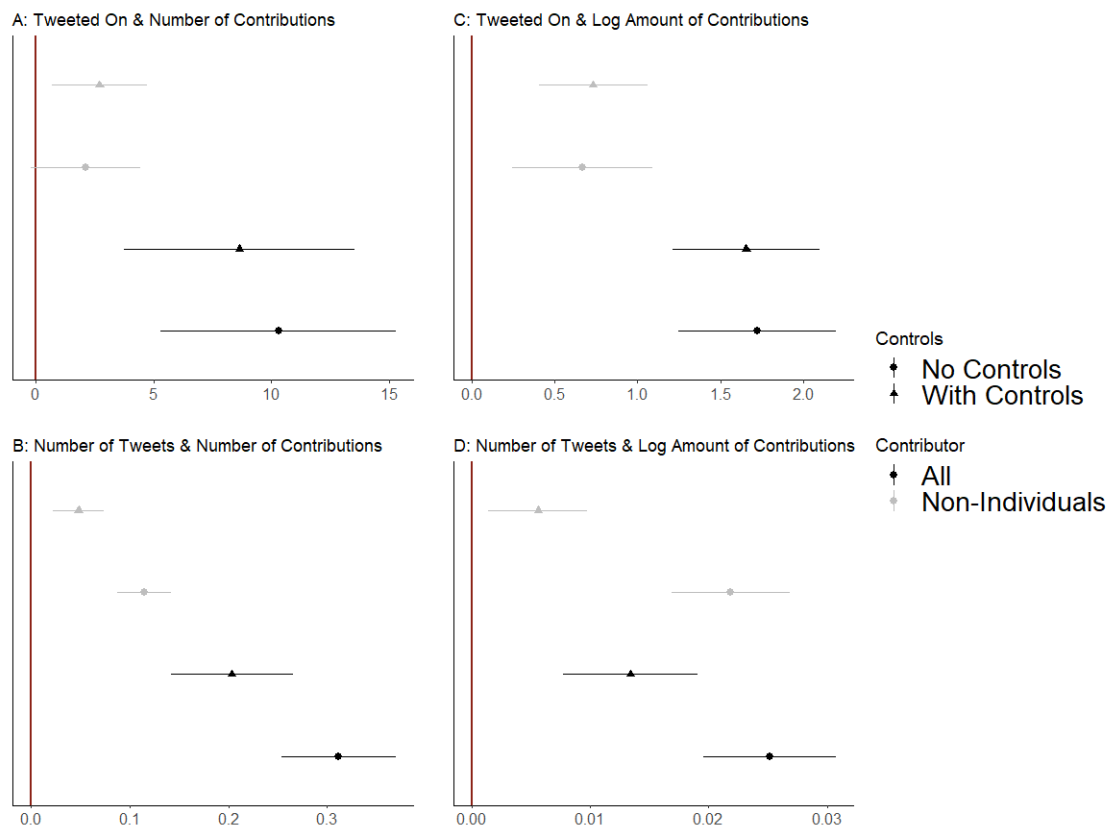
Figure A.22: Point estimates for OLS models on anti labor.

Number of Anti-Labor Contributions

	Overall		Non-Individuals		Overall		Non-Individuals	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Tweeted on Lab	8.514***	8.345***	0.680	2.414**				
	(2.533)	(2.418)	(1.283)	(1.069)				
Num Lab Tweets					0.349***	0.215***	0.141***	0.055***
					(0.028)	(0.030)	(0.014)	(0.013)
Party		3.379		8.257***		4.674**		8.551***
		(2.324)		(1.027)		(2.301)		(1.024)
Incumbent		46.967***		33.900***		41.488***		32.499***
		(2.569)		(1.136)		(2.665)		(1.186)
On Lab Comms		39.817***		34.922***		39.872***		34.918***
		(11.991)		(5.302)		(11.881)		(5.286)
% Dist in Manufacturing		0.0003**		0.0001		0.0002**		0.00005
		(0.0001)		(0.00005)		(0.0001)		(0.00005)
Constant	23.643***	−14.299	12.018***	−6.229	21.788***	−9.703	9.354***	−4.855
	(2.105)	(10.722)	(1.066)	(4.741)	(1.296)	(10.486)	(0.663)	(4.666)
State FE		Yes		Yes		Yes		Yes
Observations	2,299	2,255	2,299	2,255	2,299	2,255	2,299	2,255
R^2	0.005	0.197	0.0001	0.386	0.063	0.211	0.040	0.390
F Statistic	11.293***	9.972***	0.281	25.655***	153.945***	10.912***	96.769***	26.036***

Note: *p<0.1; **p<0.05; ***p<0.01

Table A.7: Regression results for where the dependent variable is the number of anti labor contributions.

Logged Amount of Anti-Labor Contributions

	Overall		Non-Individuals		Overall		Non-Individuals	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Tweeted on Lab	1.308*** (0.235)	1.375*** (0.208)	0.332 (0.225)	0.535*** (0.159)				
Num Lab Tweets					0.029*** (0.003)	0.013*** (0.003)	0.027*** (0.003)	0.006*** (0.002)
Party		0.140 (0.200)		0.923*** (0.153)		0.085 (0.200)		0.913*** (0.153)
Incumbent		6.059*** (0.220)		7.964*** (0.169)		5.772*** (0.232)		7.823*** (0.177)
On Lab Comms		2.226** (1.029)		2.192*** (0.790)		2.167** (1.033)		2.172*** (0.790)
% Dist in Manufacturing		0.00001 (0.00001)		−0.00000 (0.00001)		0.00001 (0.00001)		−0.00000 (0.00001)
Constant	4.429*** (0.196)	2.493*** (0.920)	3.170*** (0.187)	0.386 (0.706)	4.697*** (0.122)	3.396*** (0.912)	2.795*** (0.116)	0.731 (0.698)
State FE		Yes		Yes				
Observations	2,297	2,253	2,299	2,255	2,297	2,253	2,299	2,255
R²	0.013	0.312	0.001	0.554	0.049	0.306	0.049	0.554
F Statistic	30.917***	18.456***	2.172	50.610***	117.777***	17.928***	117.797***	50.527***

Note: *p<0.1; **p<0.05; ***p<0.01

Table A.8: Regression results where the dependent variable is the (logged) amount of anti labor contributions.
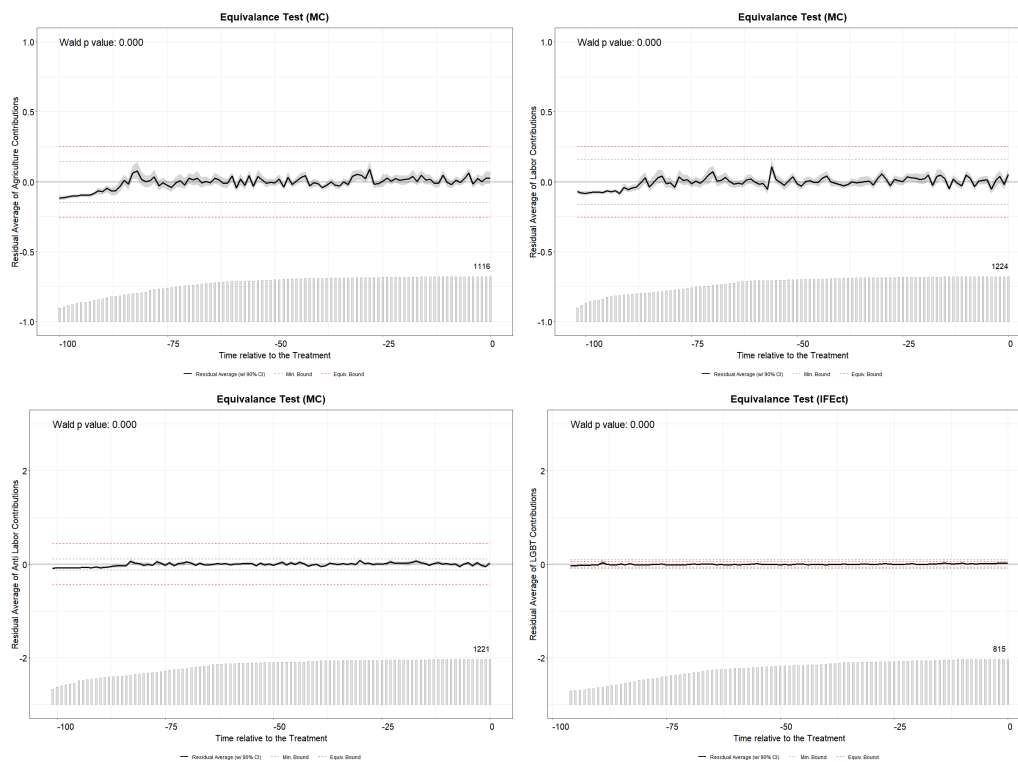
A.4.3 MC & IFE Diagnostics

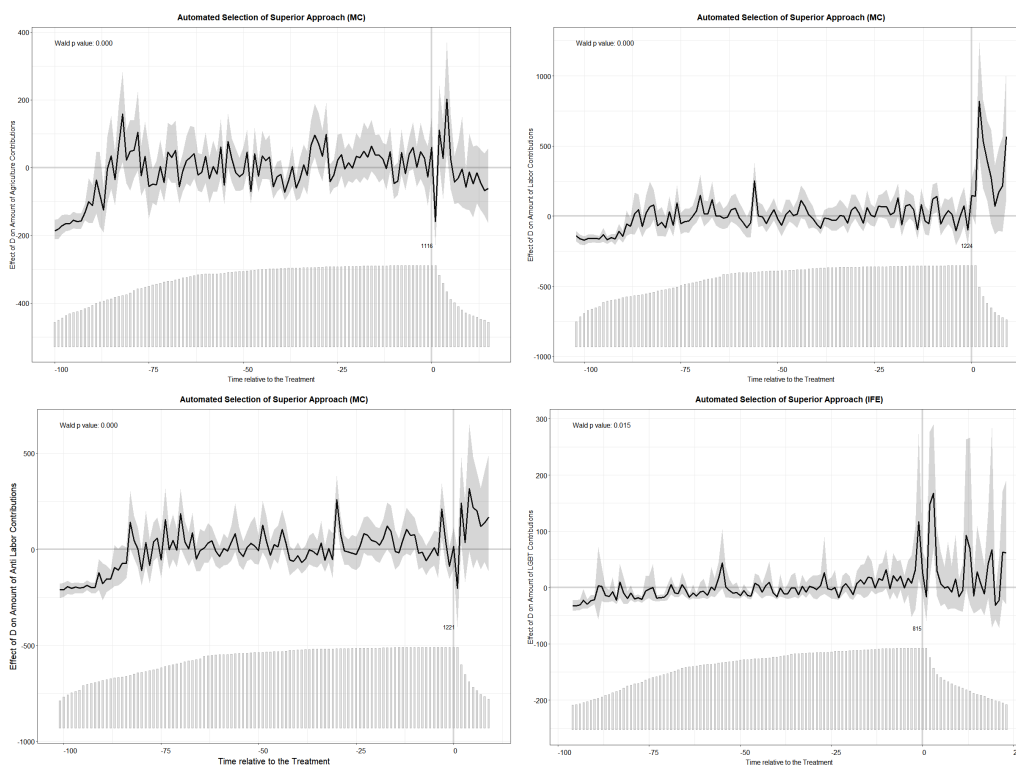Figure A.23: Equivalence test plots for each issue area and the number of contributions.

Figure A.24: Gap plots of the dynamic treatment effect of the most predictive estimator for each issue area and the amount of contributions.
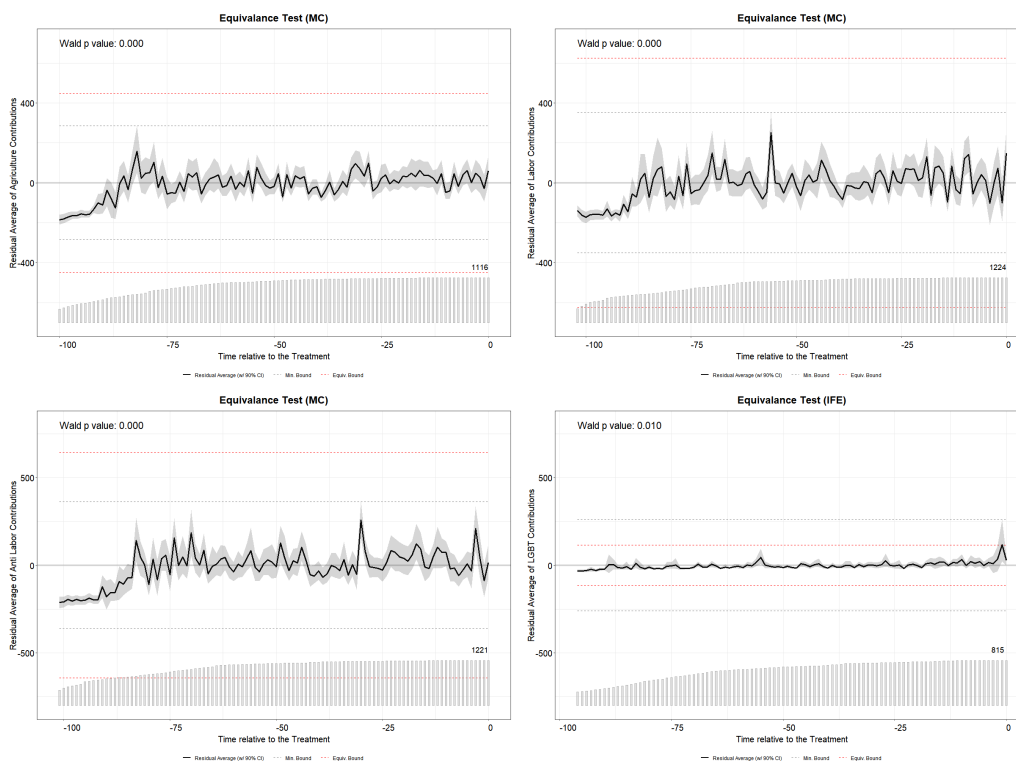
Figure A.25: Equivalence test plots for each issue area and the amount of contributions.

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