Assessing the Impact of Social Media on Congressional Polarization

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Abstract

This thesis studies the role of social media usage on the voting behavior of representatives in the United States Congress. While the impact of social media on constituent behavior has been thoroughly studied, research on how political elites respond to social media is lacking. In this paper, I hypothesize that the increased use of social media has led to increased levels of polarization in Congress. In order to appease their constituents and respond to their constituents' growing ability to track their opinions, representatives increasingly avoid appearing too moderate and indecisive. I theorize that if Congress has an increased awareness for social media, it will allocate more of its budget towards communications spending to account for online messaging. Using congressional statements of disbursements, I track communications spending over time and find that expenditures have steadily increased from 1994 to 2013. I find that conservative representatives tend to spend more on communications than their liberal and centrist counterparts. I do not find that there is a clear correlation between voting record and communications expenditures, as the most ideologically extreme members of Congress do not spend more on communications over time and newly-elected members — who tend to be less centrist than retiring members — do not spend significantly more than their incumbent counterparts. My observations imply that social media does have an influence on representatives, though how this influence manifests itself in the political process is not clear. With the growing proliferation of social media, future research must look into how politics is adapting to the online medium and how best to maintain the stability of democracy in this new age of increased polarization.

Introduction

During the late 2000s to the early 2010s, the world experienced a number of politically and socially motivated uprisings, and the successful execution of these collective people-powered efforts was largely attributed to social media, which served as a means for organizers to build networks of like-minded, passionate individuals.[1] In that period of time, with social media on the rise, platforms like Facebook and Twitter were lauded for their apparent ability to advance democratic aims, providing activists with the opportunity to rally others to their chosen causes.[2]

During the late 2010s, social media had adopted a very different role, as it became increasingly apparent that just as social media had been praised for its ability to bring people together for pro-democratic aims, it was also an effective tool for hate groups and misinformation campaigns to advance false and often election-influencing rhetoric.[3]

Despite early optimism about social media's ability to bridge the physical gaps between people and offer a space for all to be heard, this sentiment has shifted, as concern has grown over social media's role as a platform for extreme, potentially dangerous views.[4] Notably, studies seem to show a marked increase in polarization among the general public. For instance, researchers have noted a significant change in the political landscape in Brazil, where two parties have become the ideological mainstream over the 2010s, as opposed to less heterogeneity during the early years of the decade.[5] Other studies

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[1] Bennett, Segerberg, and Walker, "Organization in the crowd."
[2] Hemsley et al., "Social Media for Social Good or Evil."
[3] Martin, "Far-right trolls."; McGaughey, "Russian-backed fraud."
[4] Tucker et al., "Liberation to Turmoil."
[5] Ortellado and Ribeiro, "Brazil's political polarization."

have observed increased polarization amongst governmental elites, with partisanship growing at an exponential rate in places like the United States Congress.[67]

However, given the literature available today, the claim that social media is a cause of significant polarization is tenuous. Scholars not only have diverging opinions on social media's actual impact in creating or exacerbating ideological divisions, but also widely varying approaches to measuring social media's effect. For example, some studies have opted to simulate political messaging on social media platforms and concluded that social media exposure does impact real-world voter behavior and polarization.[8] Other studies draw directly from existing databases to conclude that increased polarization among those demographic groups least likely to utilize social media indicates there is little to no correlation between social media and polarization.[9] Further still, some studies have employed original surveys to conclude that the different perspectives present on social media can, in fact, decrease polarization and increase understanding between different ideological groups.[10]

In addition, aside from the lack of clarity regarding the relationship between social media and polarization, little research has considered how social media has or has not influenced polarization among political elites. While a significant amount of attention has been dedicated to understanding the purported echo chamber environment that social media fosters among regular citizens, minimal attention has been directed to understanding its impact on political representatives, as well as lawmakers' level of receptivity to constituent concerns being broadcast on social media. Yet the same

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[6] Andris et al., "Rise of Partisanship."
[7] Lu, Gao, and Szymanski, "Evolution of polarization."
[8] Bond et al., "61-million-person experiment."; Bail et al., "Exposure to opposing views."
[9] Boxell, Gentzkow, and Shapiro, "Greater Internet use."
[10] Lee and Choi, "Effects of network heterogeneity."

reasons offered for social media generating polarization among citizens seem just as applicable to political elites.

This thesis offers a study of social media's effect on members of Congress. Specifically, this paper explores whether social media increases polarization among members of Congress, as measured by voting behavior. In brief, I theorize that constituents' increased ability to hold members accountable through social media platforms causes members to choose extreme political positions in order to appear favorable to said constituents.

To do so, I first establish that Congress does in fact care about and respond to social media messaging. Using data on congressional expenditures over the course of twenty years, I show that the rise of social media corresponds to an increase in the allocation of congressional budgets to communications staff. Analyzing the communications element allows me to avoid the issues that arise with methods used by other research projects, which I will justify later in the paper.

I also analyze whether congressional representatives with the most extreme voting records demonstrate a significant increase in the proportion of their budgets being spent on communications. I hypothesize that those representatives who are the most ideologically liberal or conservative will have greater increases in spending on communications over the years, especially between the years 2007 and 2009 when social media begins to experience a significant increase in popularity.

I find that communications spending is not increased among ideologically extreme members, which suggests against my theory that social media is most useful for the most extreme partisans. Building off of this analysis, I consider a potential cause behind this finding and explore whether communications spending on average differs between newly-elected and incumbent members.

The structure of my thesis is as follows. In Part 1, I break down the existing literature on social media's purported impact on Congress, why I examine communications expenditures instead of actual social media activity, and the reasoning behind the hypothesis I investigate. Part 2 discusses my methods of investigation and justifies the trends I choose to track. In Part 3, I cover my findings, interpret the data, and compare said findings to my initial hypothesis and existing literature. Lastly, in Part 4, I draw conclusions about my analyses, discuss potential implications of my findings, and comment on the direction future research should take.

Part 1

Literature Review

While social media as a staple in the average individual's life is still a relatively new occurrence, the role of social media on politics has been widely studied. Specifically, existing literature seems to focus on how voter behavior is influenced by social media.

Generally, there are two points that existing literature focuses on: a voter's reactive behavior and a voter's proactive behavior in the context of the online messaging bubble. Regarding the first point, studies have different opinions. Some papers conclude that the average voter's reaction to politics as a result of social media usage has been generally negative. For instance, one study notes the trend of a growing amount of voters following unsubstantiated conspiracy theories given social media's ability to produce a so-called "flow" of information that allows for easy, constant access to new information.[11] Another work discusses the increase of "filter bubbles" via social media, where online algorithms intended to select and present information curated for the user experience have an adverse effect, instead isolating an individual from other opinions in a form of self-selection bias.[12]

On the other hand, some studies argue that the reactive behavior of constituents to social media has in fact been positive. In a study on Twitter usage in Germany, Spain, and the United States, it was found that most citizens did access and were presented with information that encompasses diverse views.[13] In another paper, the conclusion drawn was that constituents' ideological segregation

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[11] Bolter, "Political Discourse."
[12] Pariser, *The Filter Bubble: How the New Personalized Web Is Changing What We Read and How We Think* (Penguin Books, 2012).
[13] Barberá, "Social Media Reduces Mass Political Polarization."

on online messaging platforms is low, given how inefficient it might be for news sites to tailor their

reporting with a liberal or conservative slant to begin with.[14]

Stuides also cover the impact of social media on the proactive behavior of voters. Specifically,

research looks at how constituents have taken action and utilized online messaging. The common and

perhaps not unexpected thread found is that, compared to historical trends, voters tend to be more

active in politics with the help of social media. Crucially, constant access to new information is made

possible by the ability of the average citizen to constantly create new information. While pundits and

traditional news sites were previously relied upon for credible reports through mainstream channels,

the ability to independently post online has diminished the exclusivity of news produced by

journalists.[15]

While voter behavior has been comprehensively studied, existing literature studying the impact

of social media on representatives and government elites is sparse. One potential argument for the lack

of literature regarding social media's influence on Congress is due to the lack of an existing

relationship. Perhaps Congress is not influenced by online messaging. However, congressional

representatives are people too, and their position as public figures makes it even more likely that they

would pay at least a fair amount of attention to social media.

Today's era of social media has made it fairly simple for those with a significant amount of

followers to reach an unprecedented amount of people with a simple tweet or post. Even without a

significant amount of followers, select posts can go "viral", as they gain attention among individuals

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[14] Gentzkow and Shapiro, "Ideological Segregation."
[15] Biswas, Ingle, and Roy, "Influence of Social Media on Voting Behavior."

who then choose to retweet or share these posts. Notably, social media has been recognized as one of the most important communication tools in the past decade, with utility in things like building influence for researchers in the plant sciences to managing emergencies like natural disasters.[16] This utility similarly extends to Congress, where representatives gain influence and national attention based on their Twitter and Facebook followings.[17]

Of the literature that does exist, there is a strong focus on easy-to-track congressional responses to social media. For instance, there have been studies that have shown that Congress has become increasingly aware of its image on social media. Congressional offices have begun to utilize communication technology like social media for specific purposes, such as self-promotion.[18]

With social media usage among people projected to increase from over 3.6 billion in 2020 to 4.41 billion in 2025, it is not unreasonable to assume that the growing user base translates to the increased potential for Congress to reach more constituents across the board with online messaging.[19]

This trend is reflected in the increased attention being paid to communications. In recent years, positions have opened up in congressional offices where the job title includes terms like "social media". From the 113th to 115th Congress, the amount of senators who had designated social media staff increased from 16% to 32%.[20] These changes indicate a shift towards prioritizing communications operations.

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[16] Osterrieder, "In the plant sciences."; Fugate, "Aftermath of Disasters."
[17] Van Kessel et al., "New Heights on Social Media."
[18] Abernathy, "Legislative Correspondence Management Practices."
[19] Tankovska, "Global social network."
[20] Straus, "Social Media Adoption."

Congressional representatives are subject to certain uniform operational regulations. In the House of Representatives, members receive an allowance known as the Members' Representational Allowance (MRA), which is used to fund all of their legislative operations, from regular occurrences like managing casework to special instances like handling responses to coronavirus.[21] With jobs being created to account for social media specifically, it seems apparent why representational staff have consistently taken up a higher share of the MRA than their administrative and legislative counterparts. The increased demand for social media staff can also account for the increasing median salaries amongst communications directors, as offices funnel resources towards those individuals who contribute the most to maintaining and growing the online — and to an extent, public — image of congressional representatives.

As indicated by the aforementioned reports, statistical evidence regarding congressional behavior is not lacking. Rather, a likely reason for the minimal studies done on the potential impact of social media on ideology in Congress is the impracticality of tracking social media usage among a couple hundred individuals over a wide range of time. In fact, the number of studies focused on more easily observed occurrences like changing congressional staff positions seems to indicate that looking at Congress' spending behavior and office priorities is easier than collecting social media data that is hard to quantify.

Still, though it is difficult to quantify and effectively track, scholars have come up with reasonable proxies to represent how individuals' behavior changes when they account for social media. Most literature opts to methodically monitor online activity, doing things like scraping Twitter

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[21] Brudnick, "Representational Allowance."

accounts and filtering internet posts by keywords to hone in on desired information.[22] However, while manual Twitter scraping and keyword filtering are effective, the former is only feasible when the subject being studied is quantitatively limited and the latter often misses other relevant posts that may not feature the exact keywords being employed to filter the internet activity. Instead of analyzing internet data that theoretically causes a change in congressional behavior, focusing on whether the expected change in congressional response to social media exists may be more conducive.

While expenditure of the MRA is limited to representational responsibilities and excludes use on other aspects like campaign-related issues, it is worth noting that representatives are given relatively free reign over how they choose to allocate their funds. Similarly, in the Senate, senators receive an allowance known as the Senators' Official Personnel and Office Expense Account (SOPOEA), which is calculated based on each senator's needs in administrative and legislative assistance and office expenses.[23] Like their counterparts in the House, senators also enjoy great discretion over how they choose to portion their budgets.

As Crosson et al. notes regarding the House, "Given the fixed nature of MRAs, a representative's staffing and spending decisions reflect trade-offs faced by the legislator... Because of the freedom with which members spend their funds, representatives' observed spending patterns provide insight into how members confront these trade-offs..."[24] Ultimately, the way representatives choose to allocate their limited funds is representative of their primary and secondary considerations in a fiscal year. This justifies an analysis of representatives' communications expenditures.

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[22] Esteve Del Valle and Bravo, "Echo Chambers."; Stieglitz and Dang-Xuan, "Social media and political communication."
[23] Brudnick, "Representational Allowance."
[24] Crosson et al., "Partisan Competition."

Ultimately, my thesis looks to contribute to the literature on social media's impact on congressional ideology. Understanding if and how social media has impacted the way politicians decide to vote is crucial, given this has a clear direct impact on the types of policy being passed. Alternatively, those individuals who figure out how to influence politicians via social media can effectively direct important government decisions. As social media continues to grow and become a powerful tool in politics, it is vital for the government to consider how to adapt and develop strategies that mitigate any potentially negative effects of this new digital age.

Theory/Hypothesis

Prior to the advent of social media, forms of communication like phone calls and written letters were the primary means by which constituents connected with their congressional representatives. However, with the emergence of social media, constituents now have a pseudo direct line to their representatives or at the very least, their representatives' social media and public relations team. This development has implications on representatives' responsiveness to issues. In a survey conducted on congressional staffers, social media managers reported feeling more confident that representatives were being held accountable and responding to constituent concerns accordingly, as compared to staffers who managed representatives' emails.[25] It might then be assumed that the apparent impact of social media on representative responsiveness is thus a primary motivating factor for members of the public to utilize online platforms with more frequency and fervor.

Aside from the assumption that representative responsiveness has increased with increased social media usage from constituents and constituents are motivated to take advantage of this effect, it

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[25] Congressional Management Foundation, "#SocialCongress."

can also be said that representatives are motivated to appease constituents through social media

platforms. Just as platforms like Facebook and Twitter are fruitful methods of communication for

constituents, they can also be effective for representatives looking to express an opinion. As opposed to

posting a press release on the representative's website and the potentially low visibility of such a release

given constituents must actively navigate to said site, communications and/or public relations staffers

can communicate a statement almost instantaneously to a large following on social media.

Thus, it is not a stretch to say that social media's communication effectiveness is dependent on

a representative's number of followers. For instance, the amount of money a social media "influencer"

can charge companies who want to use said influencer's platform for marketing is derived from the

amount of followers this influencer has, with followers having a direct correlation on the overall reach

of the influencer.[26]

If a congressional representative is motivated by maximizing their outreach and influence, then

there seems to be a clear method of doing so: representatives should appear as ideologically extreme as

possible. In 2016 study, it was shown that those politicians with the most extreme ideological positions

have the most Twitter followers.[27]

Additionally, politicians have yet another potential motivation for choosing to become

increasingly extreme. Just as constituents can use social media to communicate with their

representatives at a much quicker rate in comparison to other methods, constituents can also

communicate with each other at a similar speed. Essentially, social media facilitates easy, instantaneous

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[26] Brown, "Social Media Following."
[27] Hong and Kim, "Social media in digital governments."

sharing of information. Thus, politicians must be extremely cognizant of their words and stances in the social media era. For instance, in 2016, presidential candidate Hilary Clinton used the phrase "basket of deplorables" to refer to supporters of her opponent, Donald Trump. Constituents honed in on this specific wording and the comment spread rapidly on social media, with accusations that the Democratic party believed all Trump supporters fit the description of a "deplorable".[28] I theorize that the fast spread of information between constituents, which enables the close scrutiny of a politician's every stance, motivates a politician to avoid "toeing the line" for fear of being branded ideologically weak. Moreover, bipartisan cooperation is subsequently unlikely, given representatives' concerns over appearing too conciliatory towards the opposing party. All this avoidance of a more centrist line of thought causes politicians to not only express ideologically extreme stances, but also vote with more of a left or right lean.

Altogether, this paper theorizes that politicians are motivated to appear and vote with more extremism to one, boost their online and political clout and two, avoid the detrimental effects of being criticized on social media and going viral for the wrong reasons.

My hypothesis is as follows:

Increased social media usage has led to increased levels of polarization in the United States Congress.

This hypothesis has a few implications for my predicted findings. Because I assume that social media is playing an increasingly prevalent role on the responsiveness and reactions of representatives, I expect to see that Congress invests more in communications over time. If social media is an important

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[28] Riddle, "All Too Easy."

medium for members to communicate, as social media grows more important, representatives decide

to spend more of their annual budget on their communications departments to bolster their social

media presence.

Subsequently, because I assume that increased spending in communications is indicative of an

increased emphasis on social media, and if social media is a polarizing factor in politics, I expect to see

that the most ideologically extreme representatives will also demonstrate an increase in the amount

they allocate to communications spending. Essentially, those representatives who do have a more

ideologically extreme voting record will have greater incentive to care about their social media profile,

given the aforementioned explanations for how polarization and extremism contributes to a social

media following.

One aspect I plan to explore is the difference in communications spending between

conservatives, centrists, and liberals. In a study on party polarization, it was found that Republicans are

"polarizing more quickly than Democrats" and tend to be more consistently extreme than their liberal

counterparts.[29] If spending on communications is indeed connected with ideological extremism and

my hypothesis holds, I can also expect conservative leaning representatives to report greater amounts

spent on communications, particularly in the later years of my dataset.

Additionally, it is notable that those members who retire tend to be more centrist than their

newly elected counterparts. In the same aforementioned study on party polarization, around

two-thirds of polarization was accounted for by the turnover of members.[30] Assuming my hypothesis is

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[29] Theriault, "Member Replacement and Member Adaptation."
[30] Theriault, "Member Replacement and Member Adaptation.

accurate, I should also see that newly elected members in a given Congress spend more on

communications than incumbents in the same Congress.

Part 2

Research Design

To test my hypothesis, I will analyze the House of Representative's expenditures from 1994 to 2013 using the *Congress and Its Experts* electronic dataset created by Drs. Jesse Crosson, Alexander Furnas, and Timothy Lapira.[31] Crosson et al. compiled a combination of statements of disbursements from the House of Representatives and records of staffing directories through LegiStorm. I use data that encompasses the aforementioned bloc of time because it accounts for the years before and after the advent of social media, as well as social media's rise in popularity.

While this dataset includes over 40 variables, I focus on the variables that cover the proportion of a congressional member's budget spent on communications and a member's DW-NOMINATE score in a given year. DW-NOMINATE is a statistical method that assigns members of Congress with a numerical score indicative of their ideological lean based on an analysis of the member's roll-call voting history.

Originally, the *Congress and Its Experts* dataset includes 4,342 records of expenditures by members of the House of Representatives. It is important to note that there are some gaps in the data from 1994 to 2000, due to data being partially recorded. Additionally, the 109th Congress will not be accounted for due to a computer glitch in Congress during 2005 that erased all the relevant data.

The main identification variables I use throughout the research are "thomas_name" (the legislator's name as provided in THOMAS, an online database of Congressional legislative information that has since been replaced by Congress.gov) and "icpsr_id" (a unique code assigned to

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[31] Crosson, Furnas, and Lapira, *Congress and Its Experts*.

each representative for identification). I use "icpsr_id" to supplement "thomas_name", as representatives may occasionally have their names recorded differently over time. For instance, representative James Sensenbrenner was listed as "Sensenbrenner, James" from the 103rd to 106th Congress and listed as "Sensenbrenner, F." from the 107th to 113th Congress. His ICPSR code of 14657 is constant throughout the years.

The other variables I use are "prop_comm_spending" (the proportion of total personnel spending accounted for by communications spending for each representative in a Congress) and "dwnom1" (the DW-NOMINATE score of a representative in a given Congress).[32] I use "prop_comm_spending" as opposed to a variable like "est_total_comm_spending" (estimated yearly total for member spending on communications staff by year) to account for occurrences like inflation.

For the first part of my analysis, I will look only at average communications spending from 1994 to 2013. I then will utilize the DW-NOMINATE scores assigned to each representative to first determine spending patterns among centrists, conservatives, and liberals in a given year and then determine spending patterns among specific ideologically extreme representatives. Finally, I will compare the average communications spending of newly-elected members against incumbent members in a given Congress.

Subset Group 1

In order to track communications spending variance over the course of the two decades, I will first divide the *Congress and Its Experts* data into subsets by each meeting of Congress included in the 1994 to 2013 time frame. Because Crosson et al. chose to compile data at the biennium level, given

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[32] Poole and Rosenthal, *Ideology and Congress: A Political Economic History of Roll Call Voting* (Routledge, 2006).

congressmembers have two year terms, my subsets are created under the same conditions, starting from the 103rd Congress and going until the 113th Congress. Each meeting of Congress covers the span of two years, save for the time between the 103rd and 104th Congress, because the dataset starts in 1994 as opposed to 1993. By graphing the average proportion of the budget allocated to communications spending across the representatives in a meeting of Congress on a line chart, I will be able to determine if communications spending has actually increased over time and if there are notable spikes in spending during certain years.

The dataset covers meetings of Congress prior to social media, during the inception of social media, and during the boom in popularity for social media in later years. Based on my hypothesis, I should see an overall increase in spending on communications from 1994 to 2013. This increase may not be totally consistent. In fact, given that social media was essentially nonexistent or unpopular from 1994 to the early 2000s, I expect to see that communications spending did not change or increase too greatly in this time period.[33] Given the rising popularity of social media from the mid 2000s on, I expect to see a drastic increase in communications spending, perhaps around the 2007 to 2009 mark.[34]

Subset Group 1 - Variables

My independent variable is the meeting of Congress or the two-year term covered. My dependent variable is the average proportion of a representative's budget spent on communications.

Subset Group 2

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[33] Ortiz-Ospina, "Rise of social media."
[34] Myers, "Twitter launched."

I will further divide Subset Group 1 based on the ideological lean of congressional members. Using the DW-NOMINATE score of each individual member, I will group the subsets by conservative (>= 0.5), liberal (<=-0.5), and centrist (-0.5<x<0.5) lean. Then, I will average the communications spending of the representatives in each new subset to determine if there are any differences in spending on an ideological level.

Based on my hypothesis, I should see that conservatives tend to spend more on communications than liberals and centrists, given conservatives are supposedly more extreme than the other two groups. If extreme representatives have a heightened awareness of their social media and communications platforms, then they should allocate a greater part of their budgets to communications and this would then be reflected in the data.

Subset Group 2 - Variables

My independent variable is the ideological lean of a representative, or a representative's DW-NOMINATE score. My dependent variable remains the average proportion of a representative's budget spent on communications.

Subset Group 3

It is difficult to directly test whether social media polarized members because all representatives gained acccess to social media at around the same time. Thus, it would be impossible to observe how some members vote following exposure to social media and how others vote with no exposure. Instead, I will check a derivative of the hypothesis. Assuming social media polarizes, it would thus be particularly attractive to the more ideologically extreme individuals in Congress. Therefore, it would be

likely that the most ideologically extreme members of each Congress were especially likely to increase their communications budgets as social media came into effect.

I will create separate datasets from Subset Group 1 by isolating the three most liberal and conservative representatives in a given Congress. I use the "dwnom1" variable to determine these members, with the most conservative being those individuals who have the largest DW-NOMINATE scores and the most liberal being those individuals who have the smallest DW-NOMINATE scores.

Because records on communications data are missing in some years for some representatives and certain representatives are only in office for a low amount of terms, the six individuals I select from a given Congress have to meet two criteria. First, they must be missing no more than three years worth of data during the time they served. Second, they must have served a minimum of four terms. This ensures that the data points I graph will produce enough information for analysis. For instance, during the 104th Congress, Representative Steve Stockman of Texas' 9th congressional district was the most conservative member, with a DW-NOMINATE score of 0.958. However, data on his expenditures is only available for the 104th and 113th Congresses due to his limited time in office. Therefore, he is not considered in the analysis of the three most conservative members during the 104th Congress. Under the aforementioned standards, the three most conservative members in that meeting of Congress end up being Edward Royce, Philip Crane, and John Hostettler (respectively the fifth, eighth, and ninth most conservative members of the 104th Congress).

After isolating these particularly liberal or conservative members in a given Congress, I then graph their communications spending during their tenure in Congress. By identifying specific

individuals who demonstrate a strong lean towards either side of the political spectrum, I can compare their spending over time to determine if there is any notable trend.

I expect to see a clear increase in spending that mirrors, and even exceeds, the amount spent by the overall Congress. Because extreme members are more likely to be cognizant of their social media presence, the data should demonstrate that they pour much more money into their communications departments than the average representative does in a term.

Subset Group 3 - Variables

Because this subset is a variance of the second subset group, the independent and dependent variables essentially remain the same. My independent variable is the ideological lean of a representative, or a representative's DW-NOMINATE score. My dependent variable remains the average proportion of a representative's budget spent on communications.

Subset Group 4

I will create another subset from Subset Group 1 which groups on the basis of newly-elected or incumbent representatives in a given Congress. To do this, I create a new variable that denotes whether a member was present in the previous meeting of Congress. To illustrate, if I have datasets on two different meetings of Congress (104th and 105th), I run a code that identifies ICPSR numbers that appear in both of these meetings. If an ICPSR identification code is present in both the 104th and 105th Congress, this indicates the member is an incumbent and the variable will be marked as TRUE. Those ICPSR codes that are not present in the 104th Congress but present in the 105th Congress will be marked as FALSE to indicate their status as that of a newly-elected member.

By splitting a Congress up in this way and averaging the communications spending of each group, I can compare the two results and determine if newly-elected members spend more or less than incumbents in a year and over the course of two decades.

Because existing literature indicates that newer members are less centrist and more ideologically extreme than retiring members, if my theory on the correlation between communications expenses and polarization is accurate, I expect to see a greater amount spent on communications among the newly-elected group when compared to their incumbent peers.

Subset Group 4 - Variables

The independent variable in this subset is member status, where a member can either be newly-elected to a Congress or an incumbent. The dependent variable is the average proportion of a group of representatives' (based on member status) budget spent on communications.

Limitations

A limitation with the research design is the issue of missing data. While using official disbursements as a proxy for social media influence is a more practical and arguably reliable way of analysis than scraping Twitter accounts, it remains a fact that some congressional offices fail to report some of their spending in a year or that the central database never recorded a representative's spending record. According to the dataset, some representatives reported no money spent on communications in random terms, which leads to some weakness in the reliability of the final graphs.

Another issue lies with the analysis being focused on the House of Representatives. Because the available data only accounted for the House of Representatives and because there is a greater number of representatives than there are senators, I assume that the data is sufficient to draw

conclusions on the overall behavior of Congress. However, because representatives are subject to two

year terms, it could be that being up for reelection constantly heightens their efforts to take social

media into account, as opposed to their arguably more secure counterparts in the Senate. To account

for this, I break the main dataset into incumbent congressmembers and newly-elected

congressmembers in that meeting of Congress and compare the two groups' communications

spending (refer to Subset Group 4). I can thus determine if newer, less secure members are indeed

allocating greater amounts to communications spending when compared to members who have

minimal worries about reelection.

Part 3

Results

Subset Group 1 Results

To begin, I first looked at the subsets created from the *Congress and Its Experts* dataset, which

were sorted by meeting of Congress. I had ten sets of data, ranging from the 103rd Congress to the

113th Congress (missing the 109th Congress), with each set of data covering a two year time period. I

calculated the average of the variable "prop_comm_spending" to find the mean proportion of the

budget spent on communications by the representatives in a meeting of Congress and graphed the
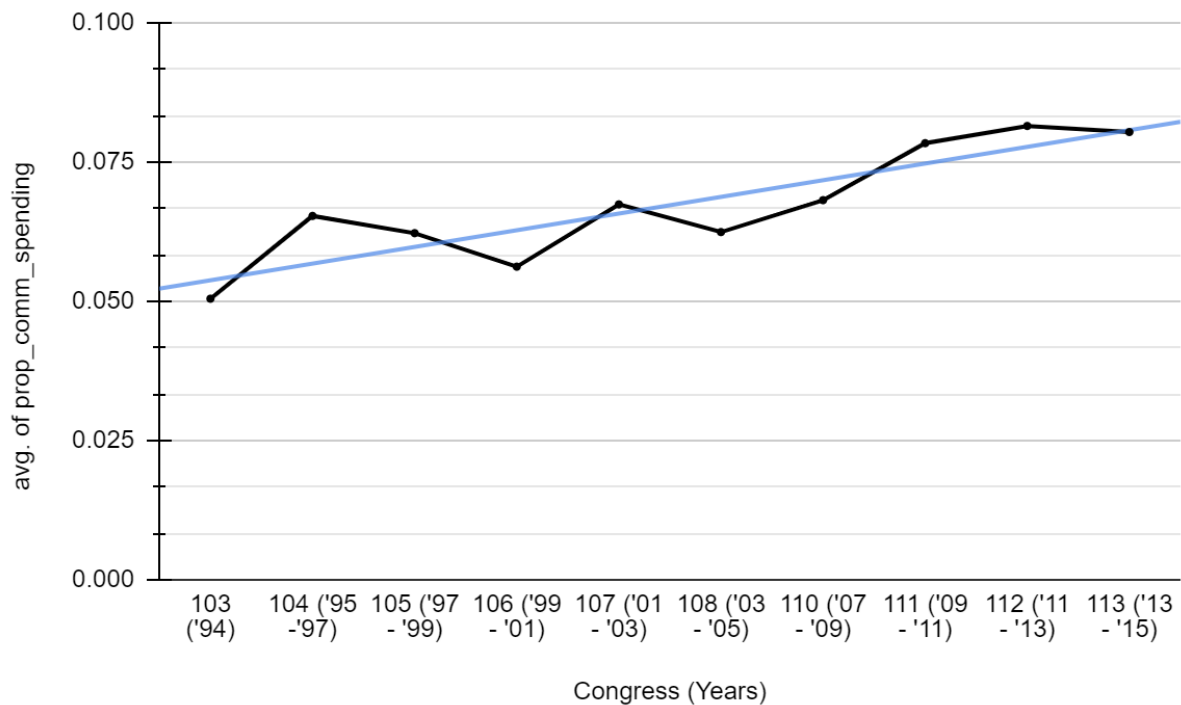
results.[35]

Figure 1. Average of the proportion of House of Representative's members' budgets spent on communications in a meeting of Congress, Congress and Its Experts

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[35] See Appendix, Table 1 for specific numbers graphed.

Figure 1 represents the average proportion of a representative's budget being spent on communications over the course of nearly two decades.

When looking at the trendline in Figure 1 (notated by the blue line), there is an overall increase in spending on communications over time. While there are occasional minute variations by year, the steady increase over time indicates that a greater emphasis is being placed on communications departments. The proportion increases from about 5% of the average member's staff budget to above 7.5%, an increase of 50 percent.

The time frame of 1994 to 2013 covers the rise of social media, with the advent of Facebook in 2004. Notably, Twitter, one of the social media platforms frequently used by politicians for online messaging, started to garner mainstream popularity in March of 2007 during Texas' annual South by Southwest convention,[36] Additionally, Facebook hit its first 100 million users in the year 2008,[37] While it may be purely coincidental, the above data displays a more significant increase in communications spending from 2003 to 2009. If the cause for communications spend is as I suggest and social media does drive emphasis on communications in political offices, then the data would indicate that communications spending does start to grow more significantly as social media begins to become mainstream.

Subset Group 2 Results

I grouped the *Congress and Its Experts* dataset by Congress and members' ideological lean. I had three sets of data (centrist, conservative, and liberal) for each Congress and I then averaged the

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[36] History.com Editors, "Twitter launches."
[37] The Motley Fool, "100 Million Users."

"prop_comm_spending" values of each dataset. I compiled all the numbers into three figures that

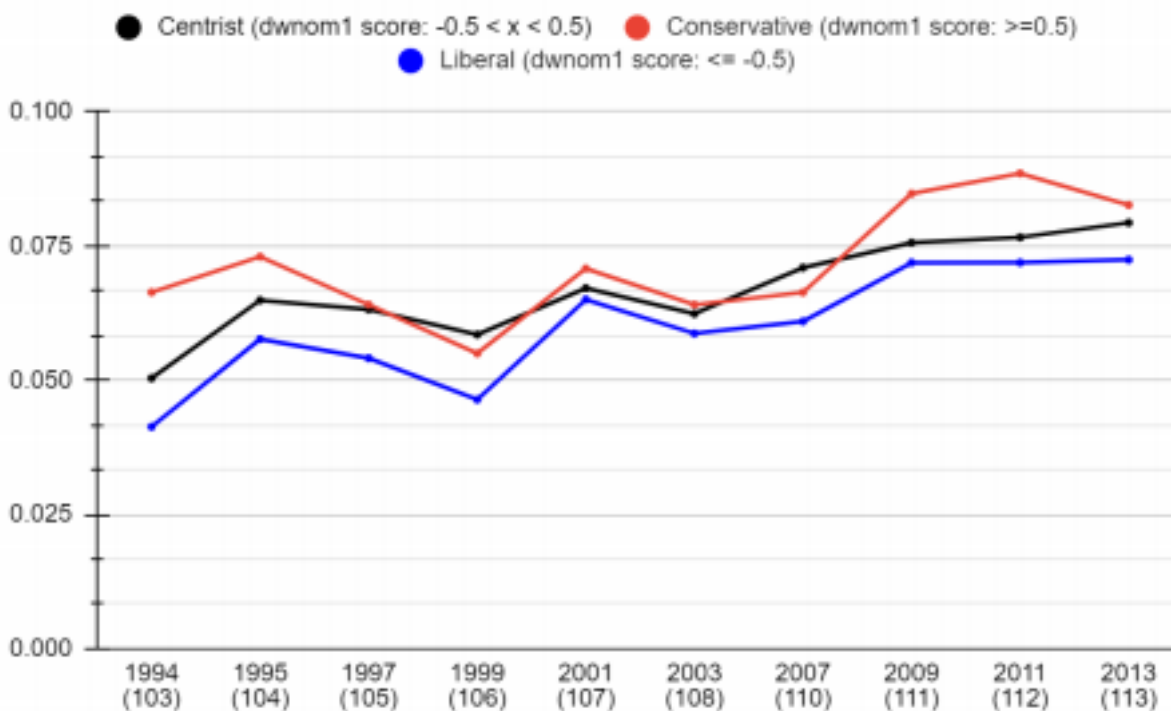represent the spending trends of centrists, conservatives, and liberals and graphed the results.[38]

Figure 2. Average of the proportion of centrist, conservative, and liberal House of Representative's members' budgets spent on communications in a meeting of Congress, Congress and Its Experts

Figure 2 represents the average proportion of different ideological groups' budget spent on

communications in a given Congress, with the black line denoting centrists, the red line denoting

conservatives, and the blue line denoting liberals.

The data supports my initial prediction that conservative representatives will tend to spend

more on communications than their centrist and liberal counterparts. Because budget allocation is

generally indicative of a representative's primary considerations, then the greater amount of allocations

towards communications should indicate that this is more of a priority to conservatives than liberals

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[38] See Appendix, Tables 2, 3, and 4 for specific numbers graphed.

and centrists. If, on average, conservatives are also more ideologically extreme than liberals, than the data may suggest that there is some connection between ideological extremism and communications being prioritized.

Subset Group 3 Results

Building off of Subset Group 2, I sorted the conservative and liberal datasets by the representatives' DW-NOMINATE scores. The most conservative members in a given Congress had the lowest scores and the most liberal members had the highest scores. I identified the three most conservative and liberal members who satisfied the following two criteria: one, the representative's data could be missing no more than three years worth of data over the course of their service and two, the representative must have served a minimum of four terms. After identifying these individuals, I graphed their communications spending over their length of their terms accounted for in the 1994 to 2013 time bloc.[39] For the sake of brevity, inncluded below are graphs of the aforementioned data from every other Congress, though the skip from the 107th Congress to 110th Congress is due to the missing information on the 109th Congress. Additionally, the skip from the 110th Congress to the 113th Congress has to do with the six featured members in the 112th Congress having been represented in past graphs.[40]

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[39] See Appendix, Tables 5, 6, 7, 8, and 9 for specific numbers graphed.
[40] Dennis Kucinich (OH-10) is featured in Figure 6, Jim McDermott (WA-7) is featured in Figure 5, Fortney Stark (CA-13) is featured in Figure 3, Ron Paul (TX-14) is featured in Figure 4, James Sensenbrenner (WI-5) is featured in Figure 3, and Jeff Flake (AZ-6) is featured in Figure 5.
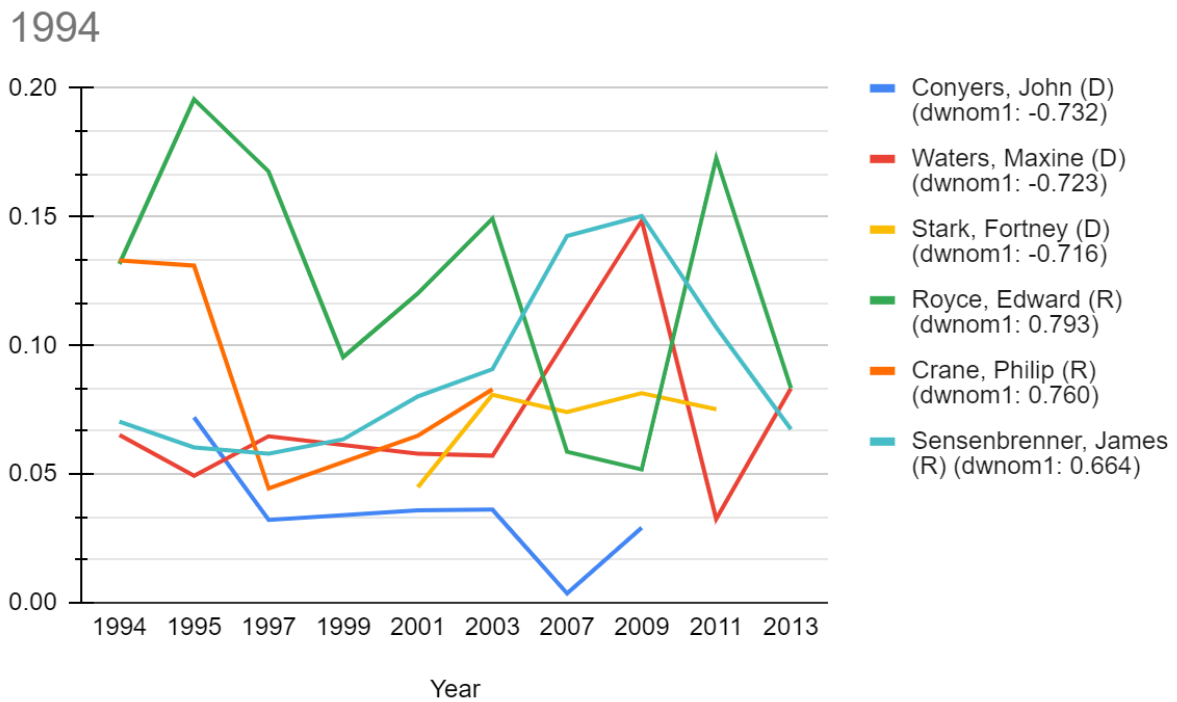
Figure 3. Proportion of the budget spent on communications over time of the three most liberal and conservative members in the 103rd Congress, Congress and Its Experts

Figure 4. Proportion of the budget spent on communications over time of the three most liberal and conservative members in the 105th Congress, Congress and Its Experts

Figure 5. Proportion of the budget spent on communications over time of the three most liberal and conservative members in the 107th Congress, Congress and Its Experts

Figure 6. Proportion of the budget spent on communications over time of the three most liberal and conservative members in the 110th Congress, Congress and Its Experts
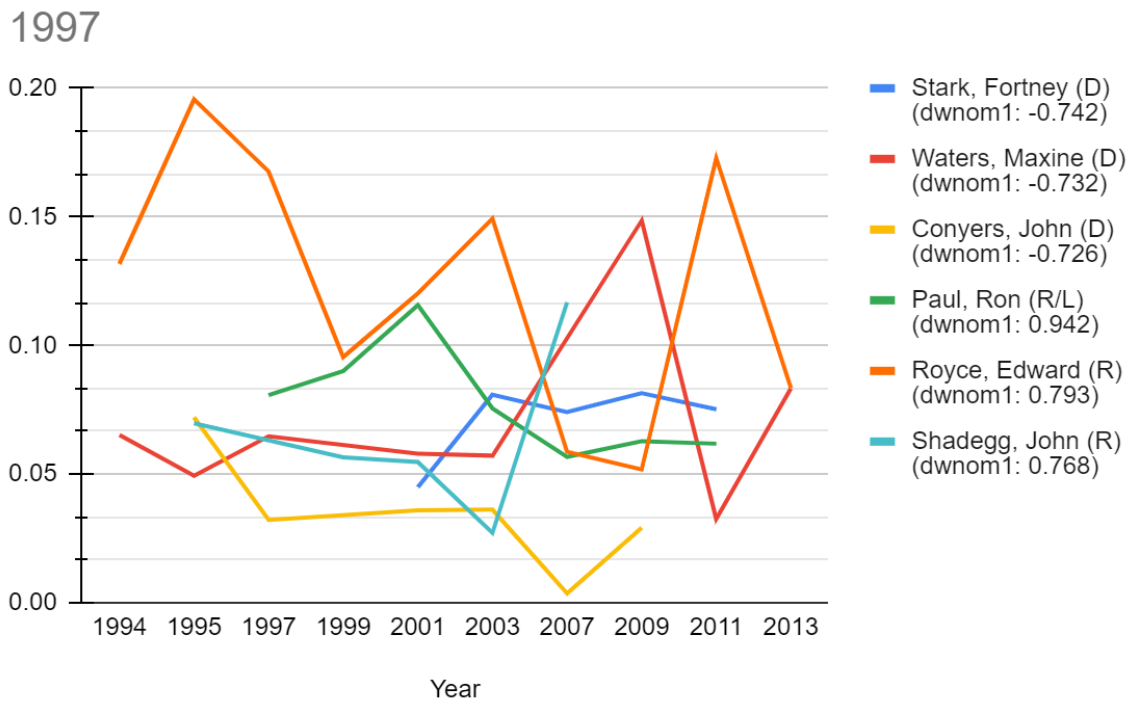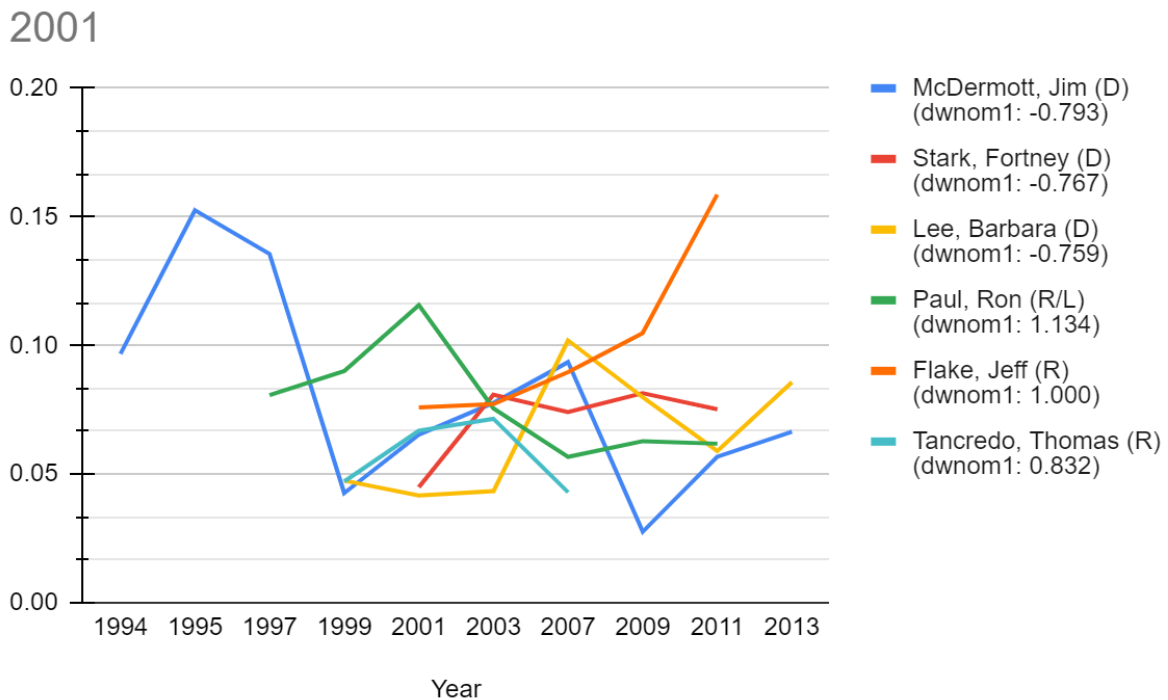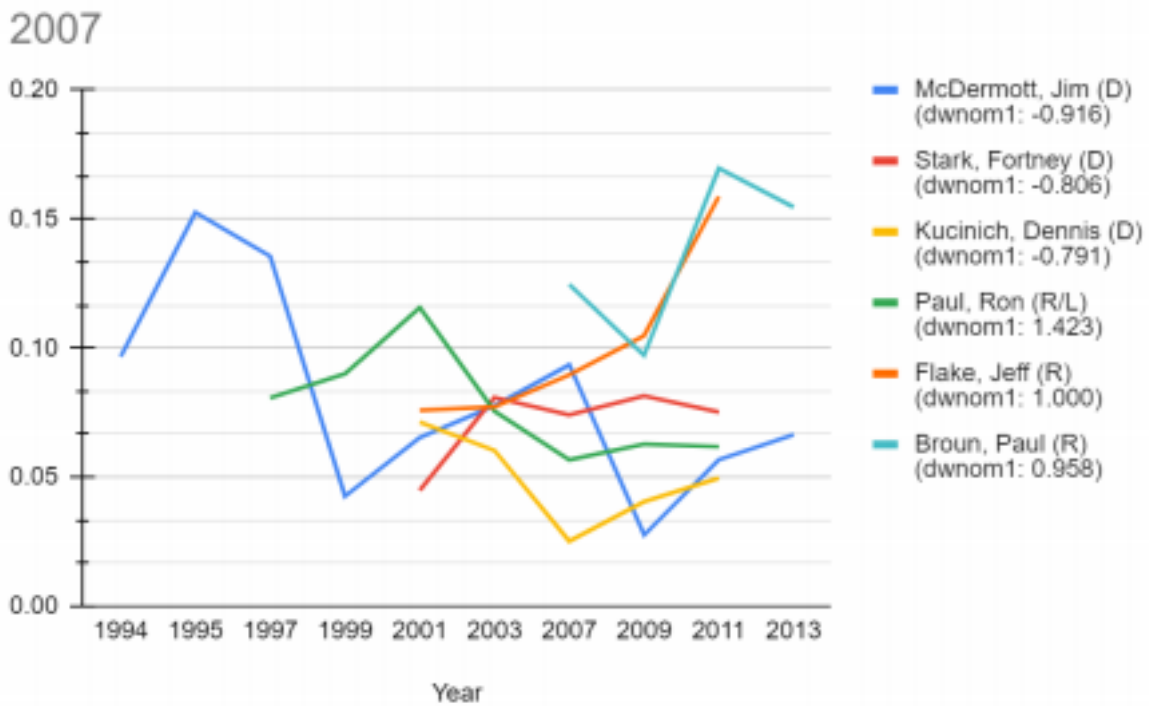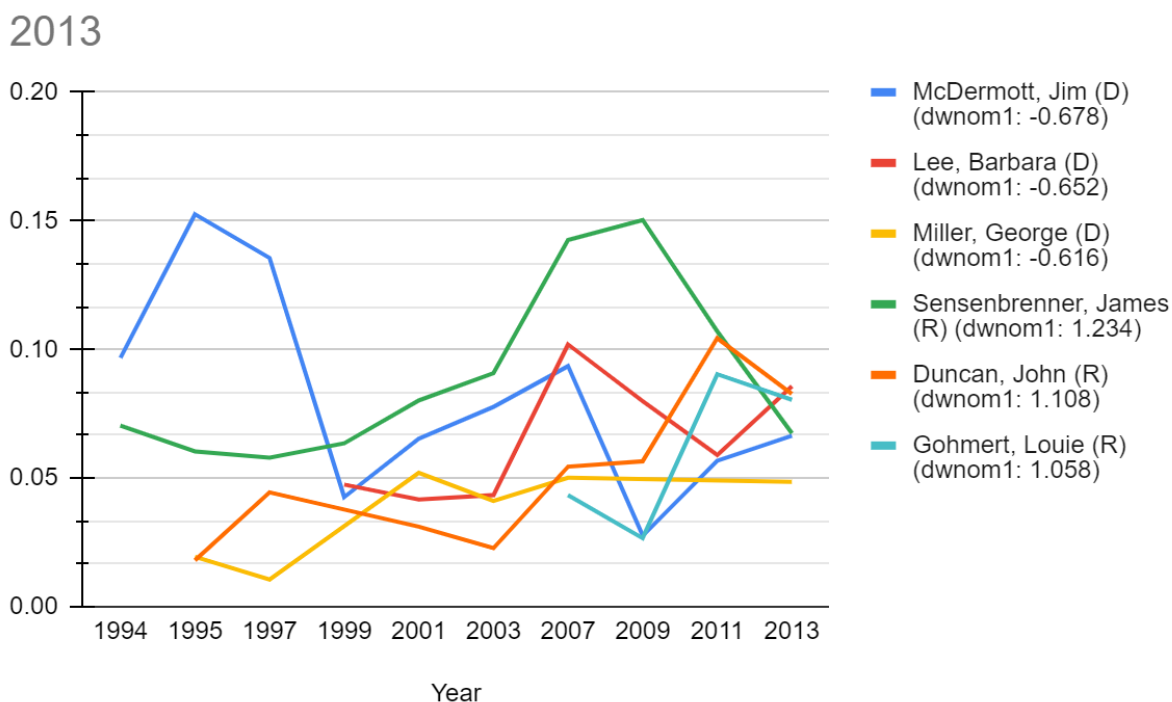
Figure 7. Proportion of the budget spent on communications over time of the three most liberal and conservative members in the 113th Congress, Congress and Its Experts

The results indicated that communications spending among the most ideologically extreme members follows no obvious pattern throughout the years. In fact, among some of the individuals graphed, their communications spending decreases over time, even as their DW-NOMINATE score indicates growing extremism. For instance, Representative Ron Paul has a score of 0.942 in 1997 and a significantly more conservative score of 1.423 in 2007 but his communications spending indicates a general downward trend across this time period.

While these graphs do not provide any evidence that supports my initial hypothesis, the lack of a clear trend does not necessarily disprove my hypothesis.

Subset Group 4 Results

Using the data frames I had created for Subset Group 1 (where I divided the *Congress and Its Experts* main dataset by Congress) I further split each Congress by newly-elected members and old members. If during a given election a seat was won by an individual who had not been in the previous Congress, they would be sorted into the "new" category for the Congress in which they first appeared. After dividing each Congress into an "old" and "new" group, I averaged the "prop_comm_spending" values in each subgroup to determine what the average amount of the budget spent on communications was for old and newly-elected members. Below are graphs visualizing this data. Of note, 109th and 110th Congress are missing.[41] There is no existing data on the 109th Congress and as a result, I could not identify newly-elected members to the 110th Congress by comparing the 110th Congress with its previous iteration.

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[41] See Appendix, Table 10 for specific numbers graphed.

Figure 8. Average proportion of the budget spent on communications by old (incumbent) and newly-elected members in the House of Representatives in a meeting of Congress, Congress and Its Experts
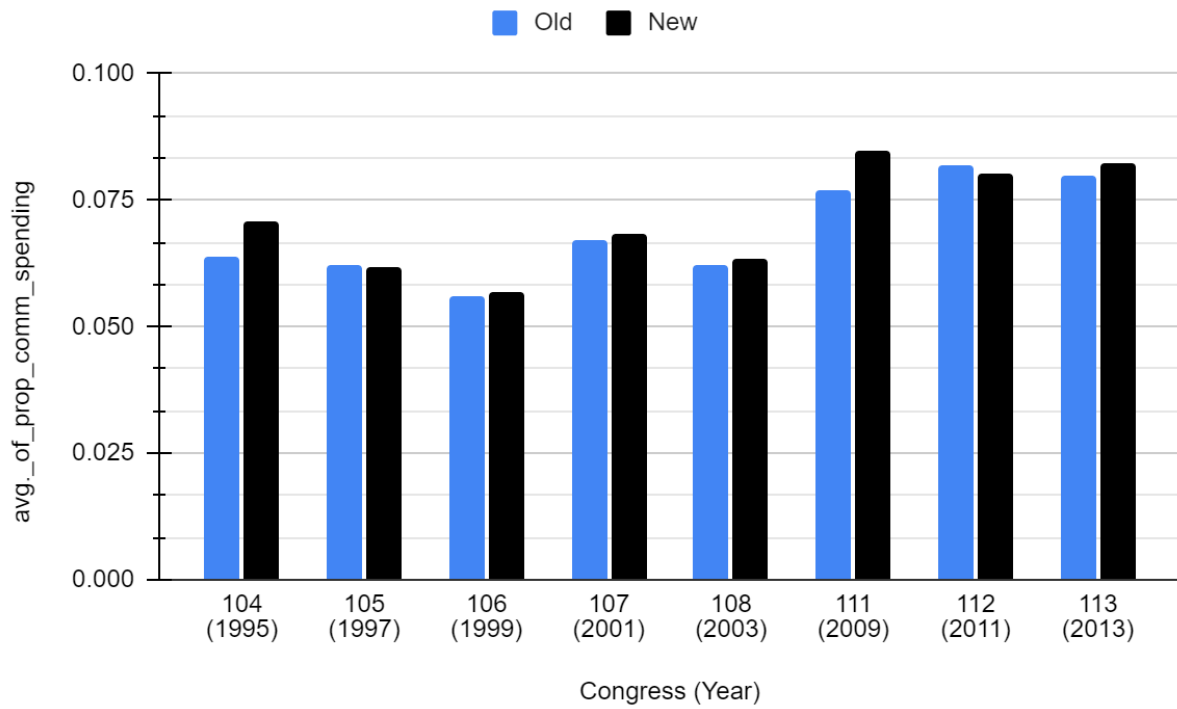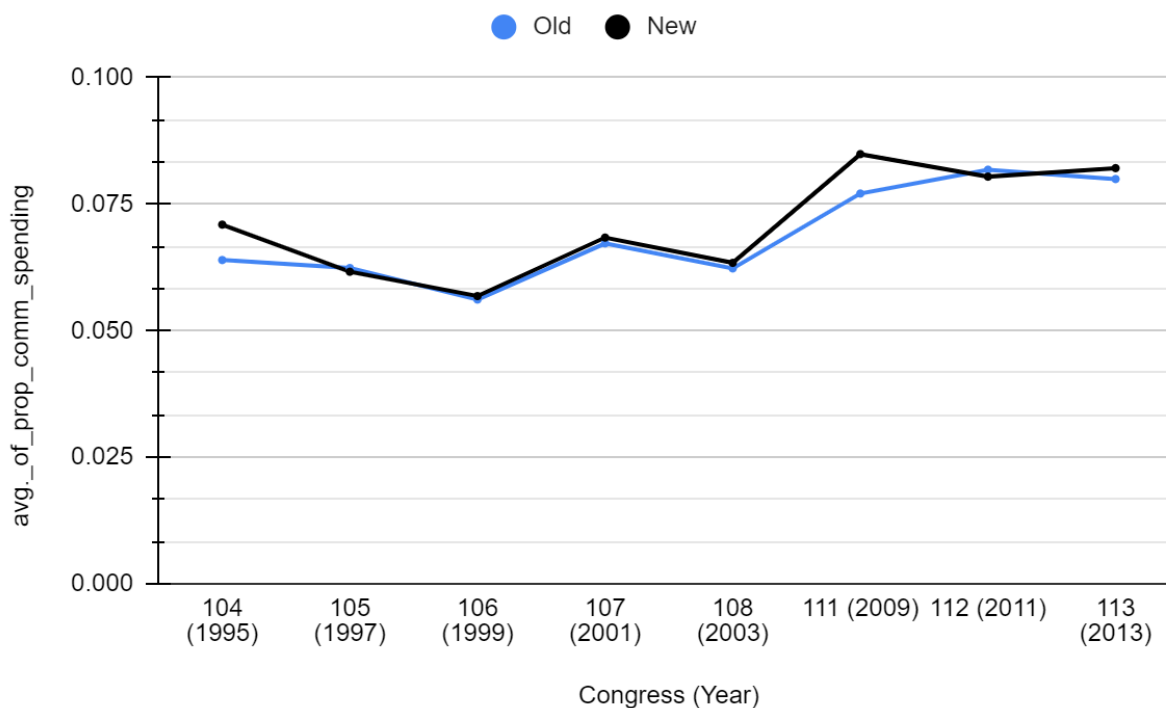
Figure 9. Average proportion of the budget spent on communications by old (incumbent) and newly-elected members in the House of Representatives in a meeting of Congress, *Congress and Its Experts*

On average, new members spent slightly more on communications than old members, though the difference is so miniscule that no significant conclusion can be drawn. There is a slight indication that new members invested more in communications during the 111th Congress. However, because the gap in communications expenditures closes in the following congressional meetings, this isolated spike does not establish anything of substance.

The jump in communications expenditures among new members occurs during and around 2009. The mid to late 2000s are also credited as the time period during which prominent social media platforms grew at an exponential rate.[42] Because the *Congress and Its Experts* dataset is missing data on the 109th Congress, this paper cannot account for the expenditures of new and old members during a

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[42] Ortiz-Ospina, "Rise of social media."

crucial four-year time period that coincides with the rise of social media. The datapoint from the 111th Congress may become significant if it is eventually possible to analyze the expenditures from the two congressional meetings before it.

Part 4

Conclusion

In this paper, I attempted to identify and establish a correlation between increased social media usage and increased polarization among political elites. Using the communications expenditures of House of Representative members as a proxy representing their responsiveness to social media, I looked for patterns in communications spending over time and a member's DW-NOMINATE score.

I was able to prove that communications spending had increased over time, with a significant increase during the rise of social media, though this may be purely coincidental. I also affirmed my initial theory that conservatives would spend more on communications than other ideological groups. While I cannot definitively say why this is, the observation aligns with my suggested explanation that the ideological extremism more prevalent among conservatives will create a greater emphasis on social media with the right.

However, I could not prove my initial hypothesis that increased media usage has led to increased levels of polarization in the United States Congress. There was no conclusive pattern when analyzing the communications expenditures of the most ideological extreme representatives. Rather, some of these representatives actually decreased their amount spent on communications. The argument that perhaps the extreme members were immune to the expected increase in communications spending due to their security as long standing incumbents was invalidated by my next analysis, which showed that new members — therefore, those with less job security — did not spend a significantly greater amount on communications than their old counterparts.

While social media usage may not have clearly impacted the voting behavior of congressional representatives, it is undeniable that social media has influenced the way representatives communicate and interact with their constituents.[43] Representatives do take into account this form of communication and they do care enough to allocate a greater amount of their budget to this area. Thus, it may be conducive to study how political campaigns have adapted their messaging to accomodate this new digital medium. Future research might look into whether lobbyists look to target constituent opinions given the public's newfound influence on representatives or whether social media is largely ignored in the larger political sphere. Other factors, such as whether a representative is from a rural or urban location, should be studied to determine whether constituent makeup and economic status play a role in the influence of social media on a representative's decision-making.

I hope that the analyses brought forth in this paper cause greater attention to be paid to the role of social media on politics and specifically on representatives. In democracies like the United States, the choices made by our elected officials have a direct impact on citizens' livelihoods, and it is important to consider how the changing world has changed our democratic process in ways the Founding Fathers could not have imagined. Social media continues to grow and more people find ways to both connect with each other and create echo chambers. We must account for online messaging's impact on bureacracies that adapt too slowly to the fast-moving advances of the technological age in order to better preserve the stability of democracy.

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[43] Straus, "Social Media Adoption."

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Appendix

Table 1. Average of the proportion of House of Representative's members' budgets spent on communications in a meeting of Congress, Congress and Its Experts

Congress (Years)	avg. of prop_comm_spending
103 ('94)	0.05047863
104 ('95 -'97)	0.06535133
105 ('97 - '99)	0.06225342
106 ('99 - '01)	0.05623327
107 ('01 - '03)	0.06741743
108 ('03 - '05)	0.06245116
110 ('07 - '09)	0.06818157
111 ('09 - '11)	0.07841833
112 ('11 - '13)	0.08150601
113 ('13 - '15)	0.08042005

Table 2. Average of the proportion of centrist House of Representative's members' budgets spent on communications in a meeting of Congress, Congress and Its Experts

Starting Year (Congress)	avg. of prop_comm_spending
C1994 (103)	0.05037077
C1995 (104)	0.06488812
C1997 (105)	0.06318341
C1999 (106)	0.05850159
C2001 (107)	0.0671364
C2003 (108)	0.06236547
C2007 (110)	0.07095231
C2009 (111)	0.07560661
C2011 (112)	0.07659629
C2013 (113)	0.07931559

Table 3. Average of the proportion of conservative House of Representative's members' budgets spent on communications in a meeting of Congress, Congress and Its Experts

Starting Year (Congress)	avg. of prop_comm_spending
R1994 (103)	0.06637354
R1995 (104)	0.07298825
R1997 (105)	0.06405622
R1999 (106)	0.05498505
R2001 (107)	0.07079716
R2003 (108)	0.06406185
R2007 (110)	0.06634812
R2009 (111)	0.08474184
R2011 (112)	0.08850014
R2013 (113)	0.08261412

Table 4. Average of the proportion of conservative House of Representative's members' budgets spent on communications in a meeting of Congress, Congress and Its Experts

Starting Year (Congress)	avg. of prop_comm_spending
D1994 (103)	0.04132472
D1995 (104)	0.0576522
D1997 (105)	0.05409116
D1999 (106)	0.04639681
D2001 (107)	0.06502289
D2003 (108)	0.05869473
D2007 (110)	0.06094427
D2009 (111)	0.0718867
D2011 (112)	0.07189642

D2013 (113)	0.07242367

Table 5. Proportion of the budget spent on communications over time of the three most liberal and conservative members in the 103rd Congress, Congress and Its Experts

Year	Conyers, John (D) (dwnom1: -0.732)	Waters, Maxine (D) (dwnom1: -0.723)	Stark, Fortney (D) (dwnom1: -0.716)	Royce, Edward (R) (dwnom1: 0.793)	Crane, Philip (R) (dwnom1: 0.760)	Sensenbrenner, James (R) (dwnom1: 0.664)
1994	#N/A	0.06516309	#N/A	0.1317238	0.13302445	0.07037833
1995	0.072050883	0.04931204	#N/A	0.19572968	0.13107169	0.0603656
1997	0.032205114	0.06471453	#N/A	0.16764154	0.04441078	0.05796336
1999	#N/A	#N/A	#N/A	0.09544432	#N/A	0.06353373
2001	0.035925616	0.05796082	0.04491037	0.12025058	0.06494673	0.08017762
2003	0.036189016	0.05718331	0.08086421	0.14930783	0.08298719	0.09080852
2007	0.003628231	#N/A	0.07409138	0.05869592	#N/A	0.14253216
2009	0.029147964	0.1485681	0.08148241	0.05179996	#N/A	0.15035328
2011	#N/A	0.03255607	0.07520755	0.17277118	#N/A	0.1070015
2013	#N/A	0.0832514	#N/A	0.08347568	#N/A	0.06744733

Table 6. Proportion of the budget spent on communications over time of the three most liberal and conservative members in the 105th Congress, Congress and Its Experts

Year	Stark, Fortney (D) (dwnom1: -0.742)	Waters, Maxine (D) (dwnom1: -0.732)	Conyers, John (D) (dwnom1: -0.726)	Paul, Ron (R/L) (dwnom1: 0.942)	Royce, Edward (R) (dwnom1: 0.793)	Shadegg, John (R) (dwnom1: 0.768)
1994	#N/A	0.06516309	#N/A		0.1317238	
1995	#N/A	0.04931204	0.072050883		0.19572968	0.06976514
1997	#N/A	0.06471453	0.032205114	0.08073437	0.16764154	

1999	#N/A	#N/A	#N/A	0.0900893	0.09544432	0.05651462
2001	0.04491037	0.05796082	0.035925616	0.11572968	0.12025058	0.05472627
2003	0.08086421	0.05718331	0.036189016	0.07549404	0.14930783	0.02715677
2007	0.07409138	#N/A	0.003628231	0.05669119	0.05869592	0.11677499
2009	0.08148241	0.1485681	0.029147964	0.06281844	0.05179996	
2011	0.07520755	0.03255607	#N/A	0.0618196	0.17277118	
2013		0.0832514	#N/A		0.08347568	

Table 7. Proportion of the budget spent on communications over time of the three most liberal and conservative members in the 107th Congress, Congress and Its Experts

Year	McDermott, Jim (D) (dwnom1: -0.793)	Stark, Fortney (D) (dwnom1: -0.767)	Lee, Barbara (D) (dwnom1: -0.759)	Paul, Ron (R/L) (dwnom1: 1.134)	Flake, Jeff (R) (dwnom1: 1.000)	Tancredo, Thomas (R) (dwnom1: 0.832)
1994	0.09678805	#N/A				
1995	0.15255789	#N/A				
1997	0.13557424	#N/A		0.08073437		
1999	0.04263717	#N/A	0.04748924	0.0900893		0.04712886
2001	0.06533307	0.04491037	0.04165418	0.11572968	0.07592044	0.06685973
2003	0.0776958	0.08086421	0.04334295	0.07549404	0.07719925	0.07149379
2007	0.09352084	0.07409138	0.10195335	0.05669119	0.08963473	0.04295334
2009	0.02759702	0.08148241	0.07993635	0.06281844	0.10477253	
2011	0.05674333	0.07520755	0.05900049	0.0618196	0.15865503	
2013	0.06644627		0.08574177			

Table 8. Proportion of the budget spent on communications over time of the three most liberal and conservative members in the 110th Congress, Congress and Its Experts

Year	McDermott, Jim (D) (dwnom1: -0.916)	Stark, Fortney (D) (dwnom1: -0.806)	Kucinich, Dennis (D) (dwnom1:	Paul, Ron (R/L) (dwnom1: 1.423)	Flake, Jeff (R) (dwnom1: 1.000)	Broun, Paul (R) (dwnom1: 0.958)

Year			-0.791)			
1994	0.09678805	#N/A				
1995	0.15255789	#N/A				
1997	0.13557424	#N/A		0.08073437		
1999	0.04263717	#N/A		0.0900893		
2001	0.06533307	0.04491037	0.07132341	0.11572968	0.07592044	
2003	0.0776958	0.08086421	0.0603216	0.07549404	0.07719925	
2007	0.09352084	0.07409138	0.02516501	0.05669119	0.08963473	0.124657
2009	0.02759702	0.08148241	0.04050372	0.06281844	0.10477253	0.09717389
2011	0.05674333	0.07520755	0.04964724	0.0618196	0.15865503	0.16966907
2013	0.06644627					0.1546376

Table 9. Proportion of the budget spent on communications over time of the three most liberal and

conservative members in the 113th Congress, Congress and Its Experts

Year	McDermott, Jim (D) (dwnom1: -0.678)	Lee, Barbara (D) (dwnom1: -0.652)	Miller, George (D) (dwnom1: -0.616)	Sensenbrenner, James (R) (dwnom1: 1.234)	Duncan, John (R) (dwnom1: 1.108)	Gohmert, Louie (R) (dwnom1: 1.058)
1994	0.09678805			0.07037833		
1995	0.15255789		0.01937698	0.0603656	0.01801116	
1997	0.13557424		0.01058674	0.05796336	0.04446512	
1999	0.04263717	0.04748924		0.06353373		
2001	0.06533307	0.04165418	0.05202717	0.08017762	0.03110531	
2003	0.0776958	0.04334295	0.04113308	0.09080852	0.02276605	
2007	0.09352084	0.10195335	0.0501492	0.14253216	0.05446037	0.0433873
2009	0.02759702	0.07993635		0.15035328	0.05652346	0.02666534
2011	0.05674333	0.05900049		0.1070015	0.10437193	0.09039856
2013	0.06644627	0.08574177	0.04852295	0.06744733	0.08275916	0.08045407

Table 10. Average proportion of the budget spent on communications by old (incumbent) and

newly-elected members in the House of Representatives in a meeting of Congress, Congress and Its

Experts

Congress (Years)	Old	New
104 (1995)	0.06396184	0.07095775
105 (1997)	0.06238875	0.06164871
106 (1999)	0.05615691	0.05684256
107 (2001)	0.06725618	0.06840053
108 (2003)	0.06230821	0.06340417
111 (2009)	0.0771058	0.08489232
112 (2011)	0.08181193	0.08043685
113 (2013)	0.07996806	0.08212372