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Do Elected Officials Listen to Constituents on Digital Media? Evidence From a Conjoint Survey Experiment With Local U.S. Politicians

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Abstract

Constituents increasingly turn to digital media to communicate with their elected representatives. However, little is known about how responsive policymakers are to these messages compared with traditional forms of communication. To answer this question, we fielded a conjoint experiment with a national sample of local U.S. politicians to measure responsiveness to different types of constituent messages. Our findings indicate that the increase in constituent participation and diversity associated with digital media positively affect reported responsiveness. However, the increased incivility, difficulty identifying constituents on digital media, and the sheer volume of messages more than offset these effects. Taken together, these findings demonstrate that the dramatic reduction in the cost of communication that has made digital media a popular form of constituent-to-policymaker communication may also undermine policymakers' responsiveness to it. Practically, our findings show that traditional media continues to be a more effective way to communicate with policymakers.

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1 Introduction

By dramatically reducing the cost of communicating with elected officials, digital media has created new opportunities for citizens to participate in democratic politics. However, digital media's democratic potential depends not only on facilitating new forms of political participation, but also on whether these new forms of participation are effective in influencing elected representatives. How responsive are policymakers to constituent communication on digital media relative to messages received through traditional media?

The people who generally use high-cost traditional modes of communication to communicate with their representatives—those who write letters, attend public meetings, and meet with representatives—are unrepresentative of the public as a whole. The people who have both the means and motivation to take such costly action tend to be wealthier, whiter, and are more likely to be homeowners (Schlozman, Verba and Brady, 2012; Einstein, Palmer and Glick, 2018; Fischel, 2001). The promise of digital media is that by lowering the costs, a larger and more diverse group of voices can make their way into day-to-day politics.

While there is widespread evidence that digital media has become a popular choice for contacting elected officials (Thomas and Streib, 2003; Rodan and Jayasuriya, 2007; Gunitsky, 2015; Dimitrov, 2014; Qin, Strömberg and Wu, 2017), the evidence on whether such strategies are effective is mixed. On the one hand, many scholars have argued that digital media can improve the responsiveness of elected officials to the citizens they represent (Shane, 2004; Shogan, 2010; Stieglitz, Brockmann and Dang-Xuan, 2012; Barberá and Rivero, 2014). On the other hand, there is some evidence that policymakers are minimally responsive to these new forms of citizen communication (Chen and Aitamurto, 2018; Grossman, Platas and Rodden, 2018), less responsive to specific groups of people (Butler and Dynes, 2016; Adman and Jansson, 2017; Einstein, Palmer and Glick, 2018) or that these messages can be intentionally misrepresented (Pan and Chen, 2018). Furthermore, these studies are limited in the sense that they tend to measure effectiveness on a particular digital medium (e.g., Twitter, email, text messaging). This makes it is difficult to draw inferences about the

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relative effectiveness of digital media compared with its alternatives ("traditional media").

In this study, we provide the first systematic assessment of the overall costs and benefits using digital media in citizen-to-policymaker communication, compared with traditional media. We do so by employing a conjoint experiment implemented through a national survey of municipal- and county-level elected officials in the United States. Each respondent receives a series of policy decision scenarios in which he or she is asked to rate the informational value of two hypothetical messages from constituents which vary on four attributes, including the number of constituents sending the message (Attribute 1), the breadth of interests represented by the constituents sending the message (Attribute 2), the "civility" of the content of the message (Attribute 3), and whether the message was received via social media or in-person (Attribute 4). Because there are multiple attributes about which scholars have suggested digital media is different from traditional media, this approach facilitates an assessment of the relative importance of these multiple differentiating features (Attributes 1-3), as well as other features associated with digital media that have not yet been explicitly theorized (Attribute 4).

This study demonstrates that digital media remains, all things considered, a less effective means of influencing elected representatives than traditional media. Even though the increase in the overall number and diversity of constituents sending messages do increase the reported informational value of digital media messages, these effects are more than offset by the incivility and other features implicitly associated with digital media which undermine the perceived informativeness of these messages. Descriptive evidence suggests that these additional features include the inability of policymakers to process the volume of messages they receive, as well as issues of non-identifiability of the senders.

This study has theoretical, methodological, and practical implications. Theoretically, this study illustrate hows reducing the cost of communication may be a double-edged sword for participatory democracy: on the one hand, it democratizes communication channels to policymakers; on the other hand, it reduces responsiveness to those very channels. From

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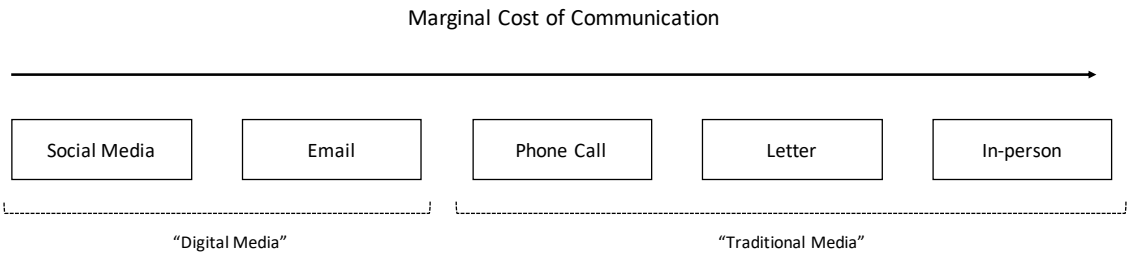

Figure 1: Marginal cost of using different communication technologies. A variety of communication technologies are displayed from left to right in terms of their marginal cost, i.e., the effort or time required to send a single message.

a methodological standpoint, this study joins a small but growing number of studies (Butler and Dynes, 2016; Malhotra, Monin and Tomz, 2018; Broockman and Skovron, 2018) which leverage national online surveys of subnational policymakers to overcome issues of data quantity (e.g., small number of national politicians) to generate novel insights about the determinants elite political behavior. Practically, this study provides guidance for an individual citizen or group interested in selecting the optimal strategy for conveying information to policymakers, as well digital media stakeholders wishing to improve ameliorate the negative perceptions policymakers appear to hold about these platforms.

2 Digital Media and Citizen-to-Policymaker Communication

The fundamental promise of digital media lies in its reduced cost of communication (Hellweg, 2011; Baruah, 2012; Gibson, 2015; Coelho, Correia and Medina, 2017). One way of conceptualizing this development is to consider the incremental cost of sending a message through "traditional media" (e.g., letter, in-person meeting) vs. "digital media" (e.g., email, social media). Figure 1 illustrates how these different communication forms would be ordered in this respect, from lowest marginal cost of communication (left) to highest marginal cost (right). Clearly, digital media tends to fall on the left side of traditional media.

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Consequently, digital media has revolutionized communication in many spheres of life, and politics is no exception. It has enabled new forms of political communication in multiple directions: politicians-to-citizens, citizens-to-citizens, and citizen-to-politicians. Politicians use digital media to promote themselves (Grimmer, Westwood and Messing, 2014; Golbeck, Grimes and Rogers, 2010), broadcast political agendas (Franco, Grimmer and Lee, 2016; King, Pan and Roberts, 2017), and influence voting (Hendricks and Schill, 2017; Graham et al., 2013). Citizens use social media to share political news, discuss politics among their peers (Lawrence, Sides and Farrell, 2010; Sunstein, 2018; Papacharissi, 2010; Colleoni, Rozza and Arvidsson, 2014), and coordinate collective action (Tufekci and Wilson, 2012). Citizens also use digital platforms to directly convey their interests and concerns to elected officials (Thomas and Streib, 2003; Rodan and Jayasuriya, 2007; Gunitsky, 2015; Dimitrov, 2014; Qin, Strömberg and Wu, 2017).

We focus on this last application, citizen-to-policymaker communication, because it is here that digital media's democratic potential would be most likely to be realized. Indeed, many scholars have theorized that the reduced barriers to directly contacting elected officials brought about by digital media would lead to a more robust, participatory, and responsive representative democracy (Becker, 1998; Coleman and Blumler, 2009; Stieglitz and Dang-Xuan, 2013; Mergel, 2013; Snead, 2013). However, digital media's democratic potential depends not only on facilitating new forms of citizen-to-policymaker communication, but also on these new forms of participation being effective in influencing elected representatives.

On this account, existing empirical evidence on policymaker responsiveness to digital media communication is decidedly mixed. On the one hand, some scholars have demonstrated the citizen-to-policymaker communication can influence policymaker behavior. For instance, Bergan (2009) demonstrates the effectiveness of grassroots email campaigns on state legislators in the U.S., and Barberá et al. (2014) illustrate how citizens can influence the expressed agenda of members of Congress via Twitter. On the other hand, other studies find that policymakers may only respond to some kinds of citizens but not others (Butler

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and Broockman, 2011; Porter and Rogowski, 2018), or how certain types of messages may be systematically ignored (Butler and Dynes, 2016; Chen and Aitamurto, 2018; Pan and Chen, 2018). When it comes to digital media in particular, Grossman, Platas and Rodden (2018) show that a new technology allowing constituents to communicate with their representatives cheaply has minimal impact on public goods provision in Uganda.

The literature assessing the effectiveness of digital media for citizen-to-politician communication tends to focus on single technologies (e.g., Twitter, email, text message). Consequently, such studies do not allow for inferences about the effectiveness of digital media compared to its alternative, traditional media. By explicitly studying policymaker responsiveness to messages received on digital media vs. traditional media, this study fills this gap by providing a more complete understanding about the relative effectiveness of digital media. Furthermore, this comparative approach facilitates a more theoretically-driven investigation by which the multiple attributes that distinguish digital media from traditional media can be explicitly considered and assessed in terms of their relative importance in affecting policymaker responsiveness. We develop hypotheses about these attributes in the subsequent section.

3 Benefits and Costs of Digital Media For Policymaker Responsiveness

Existing theory suggests three attributes which may distinguish digital media from traditional media in the context of citizen-to-policymaker communication: (1) increased number of citizens sending messages, (2) increased diversity of citizens sending messages, and (3) increased incivility in the content of such messages.[1] In this section, we develop hypotheses

[1]Each of these attributes can be understood as downstream consequences of digital media's defining feature, its reduced the marginal cost of communication. However, it is useful to disentangle these attributes insofar as they may have different effects on policymaker

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about the direction of the effect that each of these attribute would have on policymaker responsiveness.

First, scholars have suggested that digital media's reduced cost of communication would increase the overall number of citizens participating in politics (Papacharissi, 2010; Stieglitz, Brockmann and Dang-Xuan, 2012; Gibson, 2015; Karpf, 2009; Coleman and Blumler, 2009; Becker, 1998). This follows from the idea that citizens will be more likely to communicate their interests to elected officials the lower the effort or resources that is required to do so. Insofar as policymakers would take information received about the interests of a group of citizens more seriously the larger that group is, then digital media would increase policymaker responsiveness via the increased number of participating citizens. This leads us to our first hypothesis:

Hypothesis (a): Messages that are backed by a larger number of people will be more influential for policymakers.

Second, scholars have argued that digital media's reduced cost of communication could also increase the diversity of views being represented in citizen-to-policymaker communication (Barberá and Rivero, 2014; Shane, 2004; Shogan, 2010; Wright, 2012; Hofmann et al., 2013). This follows from the idea that traditional media disproportionately advantages certain groups, such as highly educated citizens of citizens with more leisure time. Consequently, digital media can "democratize" access to politicians. If we assume policymakers will take information representing the interests of a group of citizens more seriously the more diverse that group is, then it suggests that digital media would increase policymaker responsiveness via the increase in the diversity of participating citizens. This leads us to our second hypothesis:

Hypothesis (b): Messages that are backed by a diverse range of interests will be more influential.

Third, scholars have also noted how digital media has undermined the "civility" of citizen-

responsiveness.

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to-policymaker messages relative to those sent via traditional media (Anderson et al., 2014; Sayre et al., 2010; Kushin and Yamamoto, 2010; Purcell et al., 2010; Larsson and Kalsnes, 2014). While a variety of explanations for this phenomena might be offered, we suggest that this can again be understood as a direct consequence of the reduction in the cost of communication. Consistent with the work of Hersh (2017), because the barriers to communication are so low, citizens who are simply interested in participating in politics as a sort of "hobby"—rather than because they sincerely represent pressing interests—may also be more likely to be rude, hostile, or intentionally provocative. This rise in incivility, in turn, would be expected to make policymakers less responsive to messages sent on digital media. This discussion leads us to our third hypothesis:

Hypothesis (c): Communications from constituents that are incivil will be less influential.

Finally, our theoretical expectations are also informed by the literature on strategic communication (Spence, 1973; Crawford and Sobel, 1982). As Lupia and Sin (2003, 327) note, high communication costs can help politicians distinguish between constituents for whom an issue is important and those for whom it is unimportant. When the costs to contacting a representative are high, policymakers can take a wave of citizen communications as a credible signal of public concern. However, with the rise of digital media, policymakers may hear from both types of citizens—constituents who view the issue as highly salient and those who do not. To the extent that politicians care more about the opinions of the former (high-salience) group, lower communication costs decrease the informational value of communications from constituents. In short, the increased volume of messages comes with increased noise in terms of the political consequences of deviating from public opinion.

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4 Empirical Approach

This study employs two core empirical tools in assessing the relative effectiveness of digital media vs. traditional media in citizen-to-policymaker communication. The first is the use of a national survey on municipal- and county-level elected officials in the United States to characterize "demand-side" of citizen-to-policymaker communication. The second is the conjoint experimental approach to disentangle the effects of multiple attributes on which digital media differs from traditional media. These two tools are described below explained below, along with key design decisions and potential limitations.

4.1 Survey of Subnational Policymakers

To assess the "demand-side" of citizen-to-policymaker communication, we leverage a newly available policymaker survey platform through CivicPulse. CivicPulse implements multi-collaborator national surveys of local elected officials by employing a comprehensive list of municipal and county elected officials in the United States with publicly available information. A random sample of these officials are invited to participate in an online survey in which they are guaranteed confidentiality, no deception, and prompt follow-up with the findings from the surveys.

Why study local government officials? The are both substantive and practical reasons. Substantively, the vast majority of elected officials in the United States are local, rather than state or federal officials. Moreover, despite the increasing nationalization of politics, a great deal of policymaking still occurs on the local level. Practically, the greater number of local elected officials facilitate recruitment into a study on this scale in a way that would be impractical using state or federal policymakers.

This survey was completed between November 27 and December 13, 2017, with an overall response rate of 7.2%. In all, 651 people completed at least half of the survey, for a response rate of 7.2%. Respondents were well-distributed geographically, with all states but Delaware

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Party	
Democrat	40.4%
Independent/Other	9.4%
Republican	50.2%
Age	
Mean	59.5
Standard Deviation	11.7
Sex	
Male	69.3%
Female	30.7%
Education	
No bachelor's degree	22.1%
Bachelor's degree	39.2%
Graduate degree	38.7%

Table 1: Demographic characteristics of the sample. Percentages may not sum to 100 due to rounding.

represented. The modal respondent is a member of a city or town council (299 respondents). Other common positions are county board members (132 respondents) and mayors (98 respondents). Nearly 70% of the respondents are men and the average age is 59.5 years. 40% are Democrats (including leaners), 50% are Republicans (including leaners), and 10% are independents. Table 1 includes several descriptive statistics about the demographics of the sample.

How representative are these officials relative to the population of all municipal and county elected officials? In the Online Appendix (p. 5) provide some descriptive statistics about the survey sample relative to the population of local government officials as a whole. Because there is limited information about local government officials themselves available for all fifty states, these descriptives rely on matching the Census data associated with the municipalities and counties the elected officials represent. In general, our survey oversamples municipalities and counties that are slightly more populous, more urban, and more educated. The external validity of our findings with respect to this oversampling is discussed in Section 6.

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4.2 Conjoint Experiment

The second key element of our research design is the conjoint survey experiment. Prior research on officials' use of digital media typically study individual media in isolation. However, we are interested in the relative influence of constituent communication via digital media vs. traditional media. Moreover, we wish to disentangle the multiple attributes which distinguish digital media from traditional media with respect to citizen-to-policymaker responsiveness. A conjoint survey experiment addresses both of these design motivations. Moreover, there is promising evidence that conjoint experiments may outperform traditional survey experiments in approximating real-world behavior (Hainmueller, Hangartner and Yamamoto, 2015).

In the conjoint experiment, each respondent was asked about three hypothetical scenarios that local elected officials could plausibly encounter. The first scenario pertained to a property tax increase, the second to the development of a public park, the third to approving the construction of a new retail property. For each scenario, we generated two sets of communications that the official might receive from constituents, and asked officials to evaluate how informative and influential they would find each communication. We varied the messages along several dimensions of theoretical interest:

Attribute 1: The number of people communicating via this medium: 5 people, 15 people, or 30 people. Because a key feature of digital media is an increase in the volume of communication, we are interested in how much policymakers take the raw number of people echoing a message into account.

Attribute 2: The identity of the constituents. The levels were randomized randomized to include presumptive opponents of the proposal, presumptive supporters, or both. For example, for the retail development scenario, the levels were "business owners," "homeowners," and "business owners and homeowners." Theoretically, messages that come from more diverse viewpoints should carry more weight. Insofar as digital media can diversify the pool of voices, it is important to understand the effect of this dimension on policy responsiveness.

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Suppose that you have to take a stance on whether to support or oppose the development of a public park on a plot of land currently being used for a public parking lot. Below are two different messages you receive from constituents. Please look at the information and then answer the questions that follow.

	Communication 1	Communication 2
Type of communication	Visit in office	Social media
Number of constituents	30 people	30 people
Type of constituents	Business owners	Neighborhood residents
Type of argument	Arguments citing economic studies about the importance of convenient parking access for successful businesses	Arguments citing economic studies about the importance of convenient parking access for successful businesses
Policy position	Oppose	Oppose

Figure 2: An example of one of the conjoint prompts. Each of the levels except for "policy position" are randomized.

Attribute 3: The tenor of the message — either arguments based on personal narratives, arguments based on studies and statistics, or ad hominem attacks questioning the motives of the other side. While digital media can increase the number and breadth of messages that are communicated to representatives, it may be associated less civil political communication. We hypothesize that less civil messages will be rated as less influential by elected officials.

Attribute 4: The medium of communication, either "social media" or "visit in office." These two media were chosen because they represent the most pronounced difference between digital and traditional media with respect to the marginal cost of communication 1. Because communication on digital vs. traditional media may vary in additional ways beyond what we have explicitly accounted for above, this final attribute allows us to understand the residual effect of the difference in communication mediums not accounted for in Attributes 1-3.

Additionally, we specified whether the message was in support of or in opposition to the proposal, though this factor was not randomized to ensure that the tenor of the message was consistent with the position being advocated.

An example of the prompt is given in Figure 2, and the full text and description of the conjoint is available in the Appendix.

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The outcome variables are responses to the following questions:

- "How influential would each of these constituent communications be in forming your opinion?"
- "How informative would each of these constituent communications be in forming your opinion?"

There are four response options for each question, from "not influential/informative" to "very influential/informative." We code these responses as numeric 1-4 outcomes.

Each respondent was presented with each of the scenarios, and two randomly generated communication profiles corresponding to that scenario. Thus, each respondent rated six messages.

To summarize, we hypothesize that arguments made by a large, diverse group of people that cite objective statistics will be the most influential, while ad hominem attacks from a small number of interested parties will be less influential. The medium of communication factor will allow us to assess how receptive elected officials are to social media, holding fixed the number, identity, and message of the constituents.

4.3 Estimation

Following Hainmueller, Hopkins and Yamamoto (2014), we take a standard approach to analyzing conjoint survey experiments. We are interested in the average marginal component effect (AMCE) of each level. The AMCE is the average change in the outcome that is associated with moving from the baseline of a factor to a given level, averaging over the joint distribution of the other factors.

To estimate the causal effect of each of these levels, we estimate a linear regression of the

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form

$$Y_{it} = \text{Medium}_{ij}\beta_{medium} + \text{Number}_{ij}\beta_{number} + \text{Identity}_{ij}\beta_{identity} + \text{Message}_{ij}\beta_{message} + \eta_i + \epsilon_{ij}, \quad (1)$$

where each variable name is a vector of indicators for the levels, $i = 1, \ldots, N$ indexes respondents and $j = 1, 2$ indexes communication profiles. The β's represent the AMCEs of the levels. η_i are respondent fixed effects. We estimate the model via OLS and cluster the standard errors at the level of the respondent. Under random assignment of the levels, OLS provides unbiased estimates of the AMCE.

5 Results

5.1 Hypotheses Testing: Evidence from the Conjoint Experiment

The conjoint experiment allows us to test our three hypotheses and to examine the overall effects of social media on politician responsiveness. The main regression results are presented in Table 2. The first column shows the results for the "informativeness" outcome variable and the second for the "influence" outcome variable. Figure 3 presents a coefficient plot, where the points show the estimated average marginal component effects of each treatment level. The outcome variable is respondents' answer to the question of how influential the message from constituents would be on their decision making, on a 1-4 Likert scale. Bars show cluster-robust 95% confidence intervals.

First, turn to the factor "number of constituents." The results show that when a message is sent by more people, its influence on political decision-making increases significantly. In particular, a message signed by 30 people is scored as more influential by 0.21 points, on average, relative to a message signed by 5 people—almost a quarter of a standard deviation increase. This result supports Hypothesis (a). This positive relationship suggests that

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	Dependent variable:	
	Informative	Influential
	(1)	(2)
Mode of Communication: Visit in Office	*Baseline*	
Mode of Communication: Social Media	-0.397^{***}	-0.415^{***}
	(0.033)	(0.035)
Number of Constituents: 5 people	*Baseline*	
Number of Constituents: 15 people	0.078^{**}	0.075^{**}
	(0.037)	(0.035)
Number of Constituents: 30 People	0.240^{***}	0.219^{***}
	(0.038)	(0.037)
Type of Constituents: Natural opponents	*Baseline*	
Type of Constituents: Natural allies	0.009	0.003
	(0.032)	(0.034)
Type of Constituents: Both	0.089^{***}	0.083^{**}
	(0.033)	(0.035)
Type of Argument: Citing studies	*Baseline*	
Type of Argument: Personal story	-0.075^{**}	-0.003
	(0.035)	(0.035)
Type of Argument: Questioning motives	-0.321^{***}	-0.272^{***}
	(0.039)	(0.038)
Respondent FE	✓	✓
Conjoint topic indicator	✓	✓
Observations	3,382	3,382
R^2	0.557	0.568
Adjusted R^2	0.465	0.479
Note:	$^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$	

Table 2: Average marginal component effects of each treatment. Robust standard errors, clustered by respondent, are reported in parentheses. Each set of coefficients is the difference from the baseline category for that factor. The baseline categories are as follows. Mode of communication - Visit in office; Number of constituents - 15 people; Type of constituents - Natural opponents of the proposal; Type of argument - Citing studies and statistics.

more citizen participation increases the likelihood of citizens' voices being responded and considered in political decision-making.

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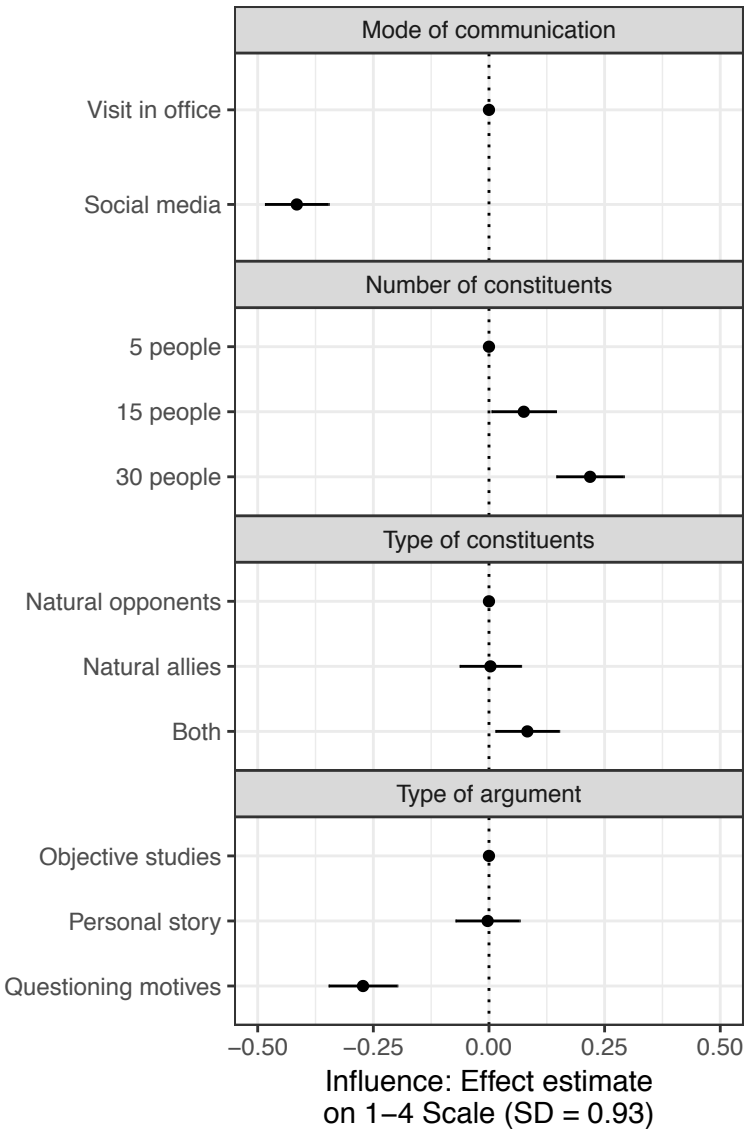

Figure 3: This figure shows the average marginal component effect of various features of hypothetical messages from constituents. The outcome variable is the respondents' rating of how influential each message would be on their decisionmaking. The figure shows that messages received on social media are viewed as less informative and less likely to be influential than in-person communication. Points show OLS coefficient estimates and bars show robust 95% confidence intervals calculated with standard errors clustered by respondent.

Next, consider the "type of constituents" factor. Here, we see that if a message is posted by constituents that represent multiple groups of stakeholders, the likelihood of it being considered influential by policymakers increases significantly. These results are in line with Hypothesis (b).

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Hypothesis (c) is also supported by our conjoint evidence, as seen in the results for the "type of argument" factor. Messages that focus on objective evidence or personal stories are seen as more influential than negative messaging focused on the messenger's opponents.

Insofar as social media enables more varied voices to be heard, it may increase the effectiveness of communications from constituents. However, the results for the "mode of communication" factor suggest a different story. Figure 3 shows that the overall effect of social media on policy responsiveness is negative compared to in-person communication mode, even controlling for the number and identity of constituents and the type of message. Politicians rate messages they hear on social media as 0.41 points less influential than comparable messages delivered in-person — a relative decrease of just less than half a standard deviation, an effect size larger than any other that we test.

This result suggests that the medium itself may decrease the credibility of the message in the eyes of policymakers. While social media may amplify the voices of constituents, it simultaneously decreases the influence of those voices compared to more traditional modes of communication.

5.2 Exploring Mechanisms to Explain Mode Factor

The conjoint experiment shows that if a constituent messages on social media are discounted relative to similar messages delivered in-person. And this discounting factor outweighs all other positive effects associated with social media. To further explore the reasons behind this finding, we focus on descriptive survey evidence. In addition to the conjoint, we asked elected officials about potential barriers to effectively using social media to hear from citizens in both open- and closed-ended questions.

Figure 4 presents the first set of results. Respondents were asked whether they agreed or disagreed that each statement on the y-axis presents a barrier to effective communications with constituents on social media.

Nearly half of respondents said that there are too many posts and comments on social

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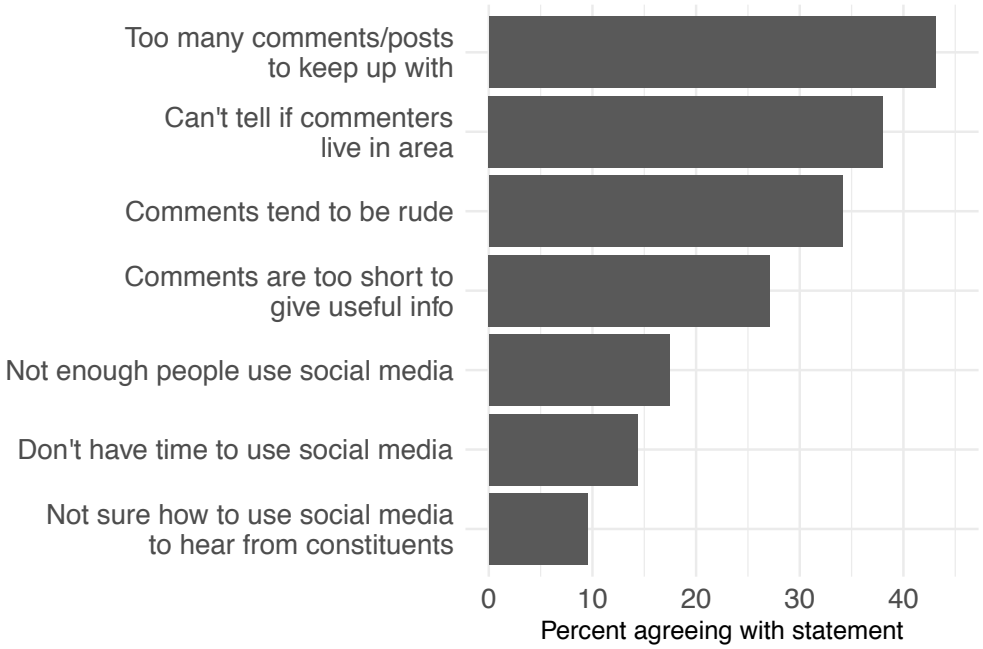

Figure 4: Percent of respondents who agree with each statement regarding barriers to communicating with constituents on social media.

media to keep up with. This response presents an interesting twist. We hypothesized — and found in the conjoint — that messages endorsed by more constituents would be more influential. However, this result suggests that while social media may enable more citizens to participate, it also produces a deluge of messages that can be hard for policymakers to sift through. The abundance of information can overwhelm politicians, making it difficult for them to read and respond to the flood of online political expression (Chen and Aitamurto, 2018; Straus and Glassman, 2016). Therefore, while local governments may welcome the usage of social media for constituency engagement, their lack of skills on how to make sense of the public participation data (Kavanaugh et al., 2012) could lead to the silence of many citizens' voices.[2]

[2]While sometimes politicians will attempt to overcome this problem by delegating to their staff, citizen representatives, or third-party organizations, delegation can lead to significant distortions in what information is ultimately conveyed to politicians (Chen and Aitamurto, 2018; Pan and Chen, 2018). In our context, most local politicians do not have the resources

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The next top-cited barrier to communicating on social media — cited by just under 40% of respondents — is that politicians cannot verify whether a commenter on social media lives in the area they represent. Social media indeed increases the diversity of messages, and, taken in isolation, this diversity can increase responsiveness (as our conjoint evidence suggests). However, the anonymity of social media makes it more difficult to verify the identity of commenters, which can decrease responsiveness. If officials believe that some of the people they hear from on social media are not from their constituents, this unidentifiability may cause them to substantially discount everything they hear on social media.[3] Therefore, social media can be less a credible communication medium compared to face to face constituency communication channels such as in-person visits, where identifying the participants is much easier. Indeed, as noted in a 2015 survey conducted by the Congressional Management Foundation, even congressional officials have a hard time identifying whether messages on social media are coming from their constituents (Goldschmidt and Ochreiter, 2015).

Next, we see that around 35% and 27% of respondents feel that the comments they get on social media are, respectively, rude or too short to be useful. These barriers echo the conjoint experiment findings, in which elected officials were responsive to the quality of the messages.

We further asked respondents to rate their perceptions of different communication modes. In particular, we asked how much they agree with the several descriptors of communications from constituents on social media and in-person. Figure 5 shows the results of this question.

About 35% of respondents agreed that messages they hear on social media tend to be rude

to delegate.

[3]Some social media platforms have attempted to address this problem. Facebook has a "constituent" badge option that allows users to enter their address and select their representatives. Then, when interacting with their elected representatives, a badge verifying that they are constituents appears next to their name. However, users must opt in and not all politicians are represented on the platform.

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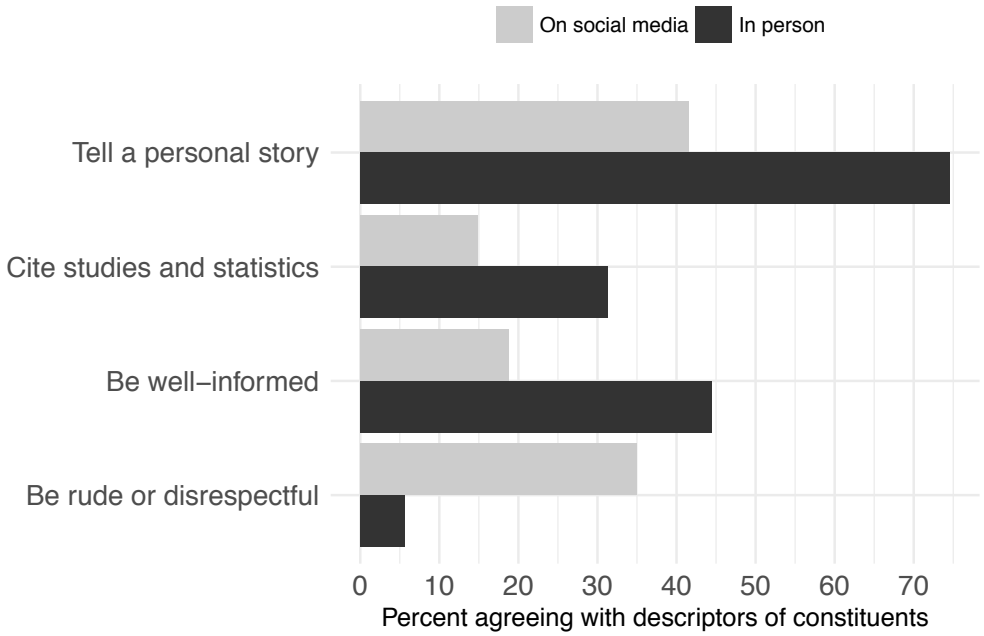

Figure 5: Percent of respondents agreeing that people who contact them exhibit the following characteristics and behavior.

or disrespectful, compared to just 5% who said the same of in-person messages. Additionally, the largest difference is that in-person messages tend to be more personal. Over 70% of respondents agreed that messages they hear in-person tend to communicate a personal story, while just above 40% agreed with that description when it came to messages on social media. Similarly, just over 30% said in-person communications tend to cite studies and statistics in making their case, compared to 15% for social media. Finally, respondents rated in-person communications as better-informed than messages on social media. In all, these factors contribute to the discounting of constituent communication on social media.

Indeed, as many local officials pointed out in our open-ended survey, the quality of information from social media is their major concern and makes them discount constituency messages from social media. Below is a sample of illustrative quotes from local officials:

> For me personally, petitions, public comments on social media, and newspaper opinion articles are not very effective at influencing me because they seem to appeal to those who want to yell or be rude and question the motives of anyone who opposes their viewpoint. ... I'm far more influenced when someone approaches me directly either in person, on the phone, or in an email since they are taking the

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> time to directly communicate. It's far easier to have a constructive dialogue and collaborative effort to find solutions with these approaches. (Councilmember)
>
> Communication that takes some individual effort is more effective than just a signature (petition) or forwarding/responding to an email or social media post.
>
> Social media makes to easy to be bullies. It's to easy to hide behind a key board and be rude to people that they would never be that way face to face *[sic]*. (Councilmember)

Overall, respondents tended to view social media as less conducive to productive discourse than in-person communications. As a result, they tend to discount the messages they hear on social media when forming policy opinions.

6 External Validity

Are these findings valid beyond the survey context in which they are measured? Five concerns that are of particular importance are (1) whether self-reported beliefs are correlated with real-world behavior, (2) whether these findings are relevant to comparative assessments of media technologies not examined in this study, (3) whether the findings among this self-selected sample are valid for the broader population of U.S. local policymakers, (4) whether these findings extend to state and federal policymakers in the U.S., and (5) whether these findings extend to policymakers in other countries.

First, when studies drawing conclusions about real-world behavior are based on self-reported assessments, it is important that they grapple with well-documented concerns about 'hypothetical bias', 'social desirability bias', and other types of cognitive biases which might lead to a disconnect between real behavior and survey response patterns (Albarracin, Johnson and Zanna, 2014; Bertrand and Mullainathan, 2001). However, a survey experiment, rather than a purely descriptive survey, does address alleviate several of these concerns (Louviere, Hensher and Swait, 2000; Becker, 1998; Arnold and Feldman, 1981). For example, the concern that policymakers would overestimate their reported responsiveness to constituent

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messages would not bias the inference about the difference in responsiveness across messages. Moreover, there is some evidence to suggest that the paired-profile conjoint, which was the survey experimental design employed in this study, corresponds with revealed preferences from real-world behavior particularly well (Hainmueller, Hangartner and Yamamoto, 2015).

Second, to what extent do these findings about the relative effectiveness of social media vs. in-person communication correspond to other media choices? Given that the underlying driver of the attributes which distinguish digital media and social media with respect to responsiveness is the cost of communication, we suggest that these effects can, at least qualitatively, be applied to any comparison of digital media and traditional media. Because these media choices were selected because they represented the largest difference in the marginal cost of communication, however, the different in policymaker responsiveness between other pairs of media technologies (e.g., email vs. letter) might be attenuated.

Third, how does the fact that local policymakers self-select into the survey sample affect our ability to interpret these findings as relevant to other local politicians who do not respond? While the sample is reasonably representative of the overall population of local policymakers (see Section 6), there are important dimensions on which sample deviates from the overall population of interest. In particular, the municipalities and counties represented in this study tend to be more populous, more urban, and more educated than U.S. municipalities and counties in general. Nonetheless, subsample analyses on these dimensions reveal the main effect of social media to be similar across groups.[4] To the extent that this sample is unrepresentative of the underlying population with respect to online communication, in particular, the most likely bias would be that politicians who select into our (online) study are more likely to be comfortable with online communication than policymakers who do not. Consequently, such a bias would lead to an *underestimate* of the extent to which local politicians, in general, discount constituent messages on social media.

Fourth, to what extent are these findings applicable to state and federal policymakers in

[4]The subsample analyses are reported in the Online Appendix (p. 7).

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the United States? In particular, should we expect elected officials at the state and federal level in the U.S. to similarly discount messages on social media relative to traditional media? Considering the challenges that social media for constituent-to-policymaker communication, we argue that the very factors which undermine the value of social media as a form of constituent-to-policymaker communication at the local level would be further exacerbated at the state and federal levels. Namely, with a larger constituency, there is more volume and it is more difficult to verify that any given correspondent is actually a constituent. A 2015 survey conducted by the Congressional Management Foundation of Congressional staffers corroborates this prediction. This study finds that Congressional staffers believe constituent messages through traditional communication mediums would have more influence on their members decision-making than messages conveyed through social media (Goldschmidt and Ochreiter, 2015). In particular, the report emphasizes the difficulty office staff have in credibly identifying whether the messages are from their constituents.

Finally, to what extent are these findings relevant to to politicians outside the United States? Grossman, Humphreys and Sacramone-Lutz (2014) find that cheaper forms of communication create a flattening effects by providing marginalized populations in Uganda more opportunity to contact their politicians. In that context, communication technology allows more people to communicate with their representatives. However, also in the Ugandan context, Grossman, Platas and Rodden (2018) find that another technology that makes it easy for citizens to send messages about public services to government officials had little effect on the quality of public goods provision. One reason is that many of the messages did not contain actionable tasks for public officials to perform. In the Chinese context, Pan and Chen (2018) find that digital media decreases the communication costs for citizens to express complaints complaints and suggestions, but many citizensâĂŹ voices do not reach upper authorities because of monitoring agencies tasked with summarizing and reporting public complaints manipulate information. These studies outside the United States echo our core findings that digital media may indeed increase participation, but may not actually lead

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to increased responsiveness.

7 Conclusion

Our findings reveal that, although citizens increasingly rely on digital media technologies to communicate with policymakers around the world, traditional media still "outperforms" digital media with respect to policymaker responsiveness. In particular, while the increased number and diversity of citizens participating in online communication have positive effects on the reported responsiveness of elected officials, these effects are more than offset by the negative perceptions associated with digital forms of communication, such as heightened incivility, inability to identify constituents, and the sheer volume of messages.

These findings do not imply that sending digital media messages will have *no effect* on policymakers. From the standpoint of political representation, to the extent that it facilitates communication from citizens who would otherwise not participate in politics at all, digital media may still add value for democratic discourse. Nor are these findings applicable to digital media's effectiveness as an indirect form of reaching policymakers (e.g., citizen-to-citizen collective action coordination). But from the standpoint of an individual constituent or group of constituents choosing what mode of communication to use to send a message to their elected officials, these findings imply that social media, and likely email, remain inferior to traditional (offline) forms of communication.

This study suggests a paradox for digital media's democratic potential. On the one hand, the dramatic decline in the cost of communication associated with digital media makes it easier for numerous and diverse members of the public to engage with their representatives. On the other hand, this popularity has also created challenges which undermine responsiveness to these new forms of communication, from the standpoint of policymakers. This paradox may turn out to be merely circumstantial. For example, some of these challenges may be resolved by technological or institutional changes by digital media platforms. Alternatively,

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it is also possible that the next generation of policymakers who have grown up in the digital era may be better suited to incorporate information from constituents received on digital media. However, it may turn out that this paradox is more fundamental. In particular, it may be the very fact that digital media is popular among citizens which undermines its credibility. Put another way, if policymakers are more responsive to traditional forms of communication *because* they are costly, then any technological innovation which reduces this costliness will be self-defeating.

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Appendices

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Online Appendix for "Do Elected Officials Listen to Constituents on Digital Media? Evidence From a Conjoint Survey Experiment With Local U.S. Politicians"

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Contents

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A Conjoint Details

We presented three hypothetical local political scenarios to each respondent, in a randomized order. Respondents were asked to imagine that they had not yet made up their mind on a decision they faced. They were then told that they received two messages from constituents on this issue, and were asked to assess how *informative* each message is and how *influential* it would be in shaping their thinking. To assess the relative importance of different features of the messages, we randomly varied several factors with the following levels:

- Mode of communication
  - Visit in office
  - Social media
- Number of constituents
  - 5 people
  - 15 people
  - 30 people
- Type of constituents (levels varied by scenario; see below for details)
  - Natural allies of the proposal
  - Natural opponents of the proposal
  - Both
- Type of message (levels varied by scenario; see below for details)
  - Questioning motives of other side
  - Personal story about the impact of the proposal
  - Arguments citing objective studies

The levels of the type of constituent and type of communication were customized to each scenario, depending on the content. Exact wording and levels are below. The messages were further customized based on whether the messages were in support of or opposed to the proposal.

Respondents saw the following block of introductory text:

> Next, we are going to describe a series of hypothetical local policy debates. For each scenario, you will be provided two different messages you receive from your constituents. We recognize that these scenarios are abstracted from the particular details, and that may not all be relevant to your particular position or locality. Nonetheless, we appreciate your "playing along" to inform us how you value different kinds of information.

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A.1 Park Scenario

Intro text:

- "Suppose that you have to take a stance on whether to support or oppose the development of a public park on a plot of land currently being used for a public parking lot. Below are two different messages you receive from constituents. Please look at the information and then answer the questions that follow.

Identity of constituents:

- "Business owners"
- "Neighborhood residents"
- "Both business owners and neighborhood residents"

Type of argument (supporting proposal):

- Arguments citing economic studies about the positive benefits of public spaces
- Personal stories about the importance of giving kids somewhere to play and exercise
- Arguments that the opponents of the park only care about profits and not the community

Type of argument (opposing proposal):

- Arguments citing economic studies about the importance of convenient parking access for successful businesses
- Arguments that the park will attract loitering and make the neighborhood feel unsafe
- Arguments that the proponents of the park want to hurt the nearby businesses

A.2 Property Tax Scenario

Intro text:

- Suppose that you have to take a stance on whether to support or oppose a property tax increase in your local area of 0.5% to improve funding for a "pre-K" (pre-Kindergarten) public school program. Below are two different messages you receive from constituents. Please look at the information and then answer the questions that follow.

Identity of constituent:

- Senior citizens
- Parents of schoolchildren
- Senior citizens and parents of schoolchildren

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Type of argument (supporting proposal):

- Personal stories about the impact of good education on getting out of poverty
- Arguments citing studies on the importance of early childhood education for long-run success
- Arguments questioning why opponents care more about wealthy homeowners than schoolchildren

Type of argument (opposing proposal):

- Personal stories about the difficulty of paying high property taxes in this economy
- Arguments citing economic studies about how high property taxes hurt local job creation
- Arguments questioning whether the tax increase is just a ploy by teachers unions for higher pay

A.3 Retail Development Proposal

Intro text:

- "Suppose that you have to take a stance on whether to support or oppose the development of a new retail property on a block near an existing residential area. Below are two different messages you receive from constituents. Please look at the information and then answer the questions that follow."

Identity of constituents:

- Homeowners
- Business owners
- Business owners and homeowners

Type of argument (supporting proposal):

- Argument citing economic studies on the positive effects of business development for the community
- Personal stories about how more nearby stores would increase residents' quality of life
- Arguments that opponents of the development care more about keeping the neighborhood the same than the economic well-being of the town as a whole

Type of argument (opposing proposal):

- Arguments citing studies that retail development increases traffic, making it dangerous for kids
- Personal stories about how a retail store would disrupt the tight-knit neighborhood community
- Arguments that the developers only care about profits and not the community

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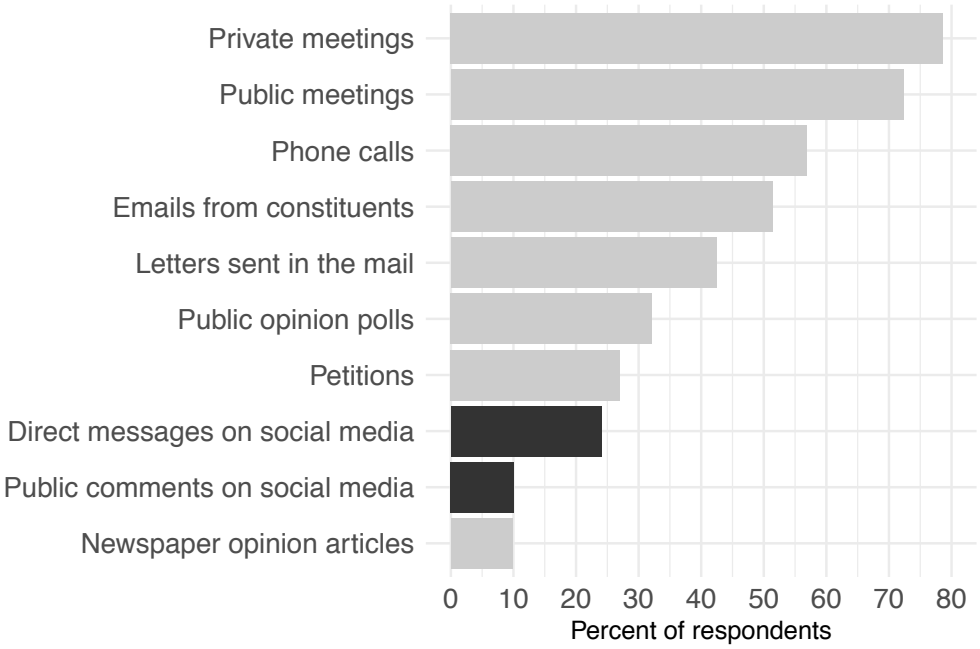

Figure A-1: Percent of respondents who find each communication strategy "very useful" in coming to decisions on public issues. Respondents are much less likely to list messages they receive on social media as useful than other methods of communicating.

B Descriptive Survey Questions

We undertake two measurement strategies to understand the role the medium plays in the influence of communications to elected officials. First, we asked respondents directly what the most effective way to communicate to them is. In particular, we ask them: "Imagine you have not already arrived at a firm decision on an issue. How useful would each of the following communication strategies be for influencing your decision? Very useful; somewhat useful; not at all useful." We then listed a number of ways of contacting elected officials, including direct messages on social media, public comments on social media, in-person meetings, and phone calls, among others. This question provides a baseline comparative measure of the perceptions that public officials have toward social media.

Next, to measure the comparative prevalence of social media use by public officials, we ask two questions. We distinguish between communication to constituents and communication from constituents.

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The first question asks, "Now, we'd like to know how you hear from constituents. We'll ask about both private and public forms of communication. Here, we list ways in which constituents might communicate with you publicly. In the last month, how often have your received information in this way?" The response options included private and public messages on social media, op-ed articles, emails, and phone calls, among others.

The second question asks: "In the past month, how often have you communicated to constituents in this way?" The options included public and private meetings, phone calls, and social media, among others. Given that the possible modes of communication vary between whether officials are communicating to constituents and hearing from constituents, the two questions differ in the responses.

These questions give us a descriptive sense of how elected officials use social media. However, there are numerous factors that vary across different communication media. For instance, in-person or phone conversations may be more conducive to respectful discourse than social media. In that case, it is not the medium per se that would make officials dislike social media but the quality or the type of information transmitted from the constituency.

C Sample Representativeness

How representative is the sample of local elected officials who participated in our online survey compared with the population of municipal and county elected officials generally? While there is limited demographic information available covering local politicians across all U.S. states, we can partially answer this question by comparing how representative the demographic features of the municipalities and counties represented are compared with the nation as a whole. To do so, we merge all municipal elected officials who participated in the survey with the relevant municipal-level demographic information by matching on the state and name of the municipalities (e.g., town, township, or city) which the elected official represents. Exact matching of 95% was achieved for municipal officials. For county-elected

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officials, we are able take advantage of the FIPs code system which uniquely identifies all counties. Consequently, we achieved 100% exact matching rate.

By using this matching technique, we compare how representative the municipalities and counties represented in this survey are with the full distribution of municipalities and counties in th e United States. We do so using three key variables: the population of residents living in the area, the proportion of those residents classified as living in an urban area, and the proportion of residents with a 4-yr college degree (out of all resident twenty five years or older). Tables A-1 and A-2 display these comparisons. The distribution of municipalities and counties represented in our study are modestly more populous, more urban, and more educated than the full distribution of municipalities and counties in the United States.

	Survey Sample	Census Population
Proportion Urban, 25th Percntile	0.99	0
Proportion Urban, Median	1	0
Proportion Urban, 75th Percntile	1	0.99
Proportion College-educated, 25th Percentile	0.19	0.1
Proportion College-educated, Median	0.29	0.17
Proportion College-educated, 75th Percentile	0.42	0.27
Population Size, 25th Percentile	8,637	226.2
Population Size, Median	13,822	742
Population Size, 75th Percentile	27,162	2,745

Table A-1: Comparison of cities that municipal-level respondents represent to the full distribution of municipalities in the United States.

	Survey Sample	Census Population
Proportion Urban, 25th Percntile	0.99	0
Proportion Urban, Median	1	0
Proportion Urban, 75th Percntile	1	0.99
Proportion College-educated, 25th Percentile	0.19	0.1
Proportion College-educated, Median	0.29	0.17
Proportion College-educated, 75th Percentile	0.42	0.27
Population Size, 25th Percentile	8,637	226.2
Population Size, Median	13,822	742
Population Size, 75th Percentile	27,162	2,745

Table A-2: Comparison of cities that county-level respondents represent to the full distribution of counties in the United States.

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D Subsample Analyses

We tested for heterogeneous treatment effects according to the following respondent-level variables:

- **Age**. We split the sample into the oldest and youngest quartiles — older than 68 and younger than 53.
- **Partisan Identification**. We include "leaners" as partisans.
- **Facebook Use**. Split by whether or not the respondent uses Facebook in an official capacity.

We do not find evidence of heterogeneous treatment effects across any of these variables. The following pages present coefficient plots. In all cases, formal F-tests fail to reject the (joint) null hypothesis that the treatment effects do not vary across the subsamples defined by the covariate.

Given that our sample of elected officials tends to represent places that are more populous, more urban, and more well-educated than the universe of U.S. municipalities, we also test for heterogeneous effects according to these constituency-level variables. For these tests, we split the sample to compare the top and bottom terciles on each variable, as follows:

- Population: Above 27,876 (high population) vs. below 11,631 (low population)
- Urbanness: Above 99.7% urban (high urbanness) vs. below 86% urban (low urbanness)
- Education: Above 32% of constituency with college degree (high education) vs. below 20% of population with college degree (low education)

Again, we fail to detect heterogeneous effects.

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D.1 Age

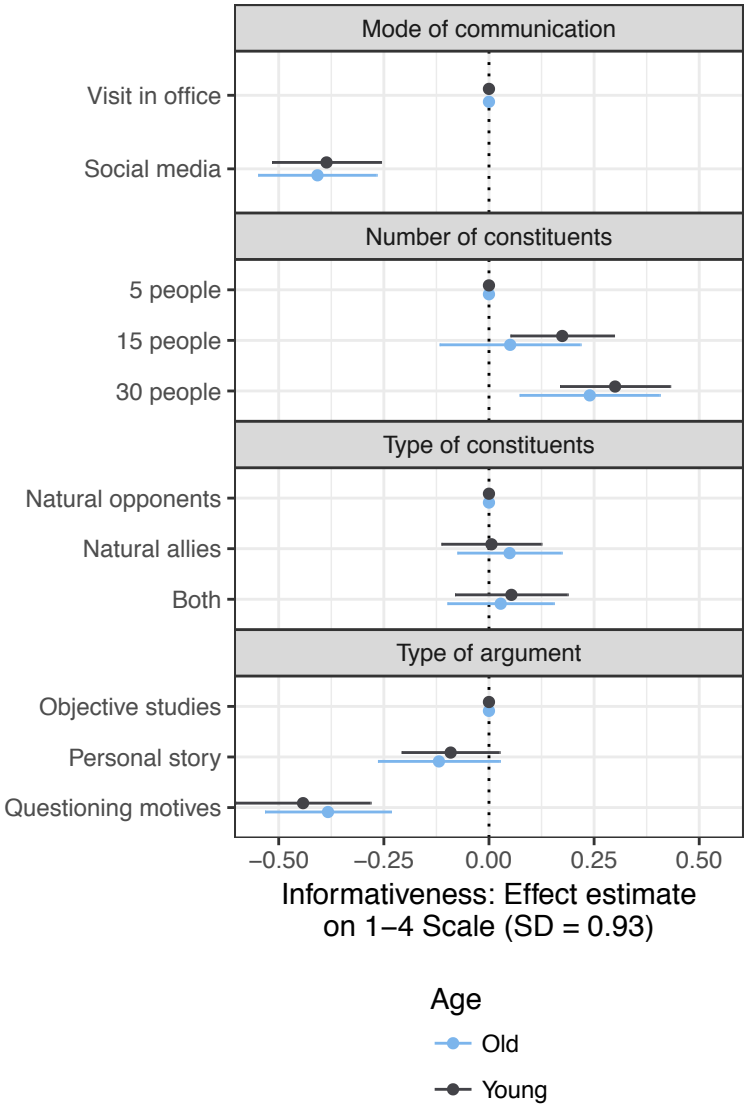

Figure A-2: Outcome: Informativeness, split by old and young respondents.

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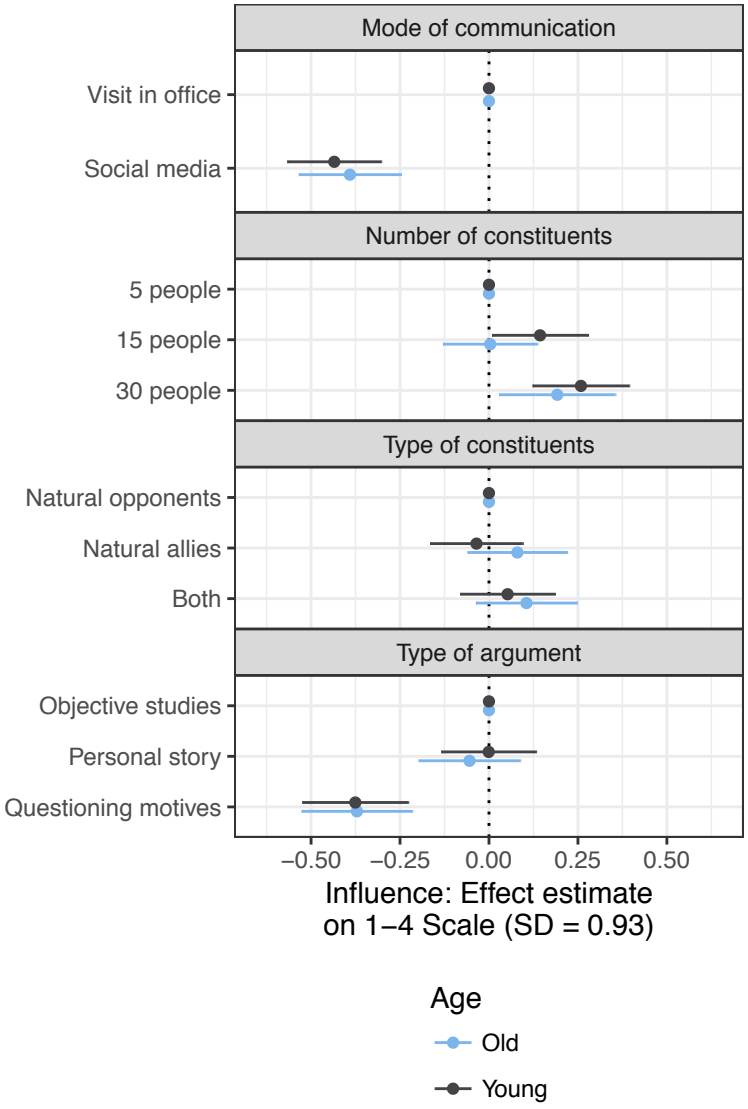

Figure A-3: Outcome: Influence, split by old and young respondents.

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D.2 Party

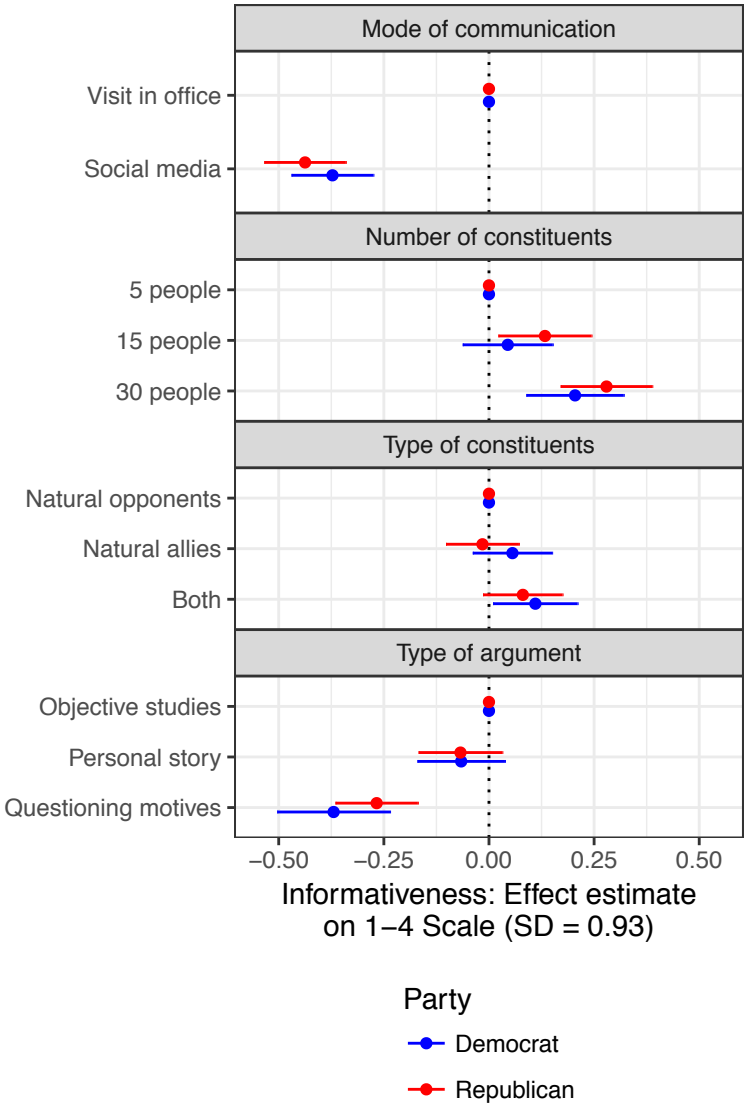

Figure A-4: Outcome: Informativeness, split by party.

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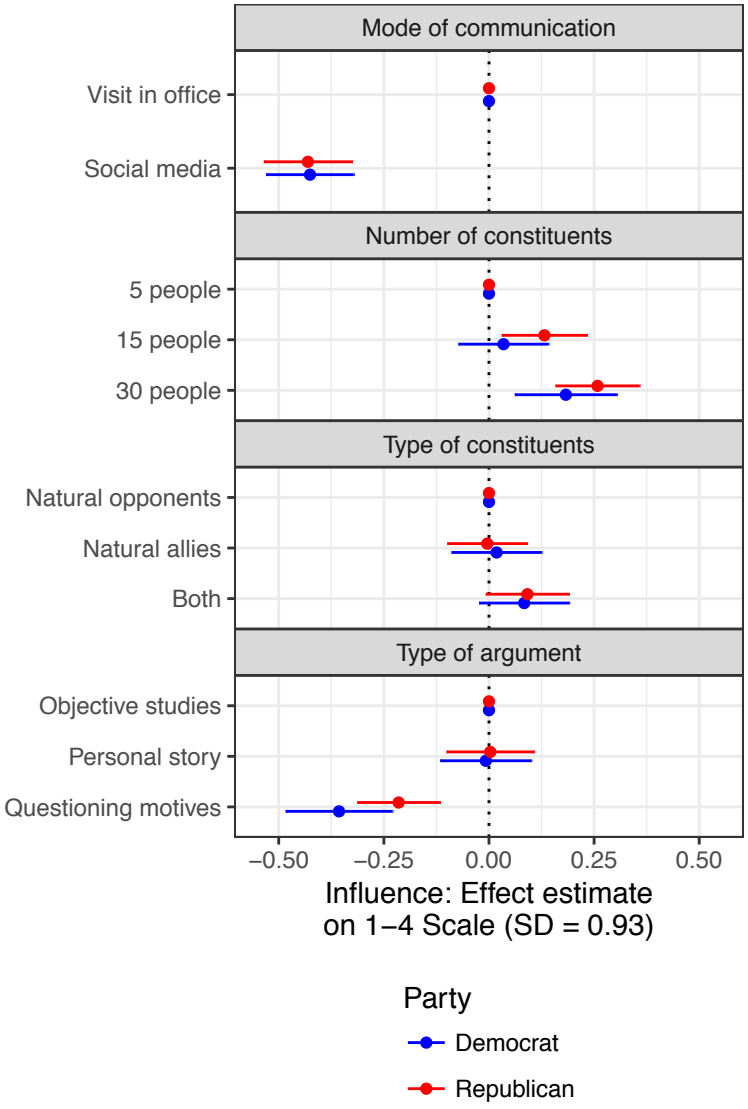

Figure A-5: Outcome: Influence, split by party.

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D.3 Social Media Use

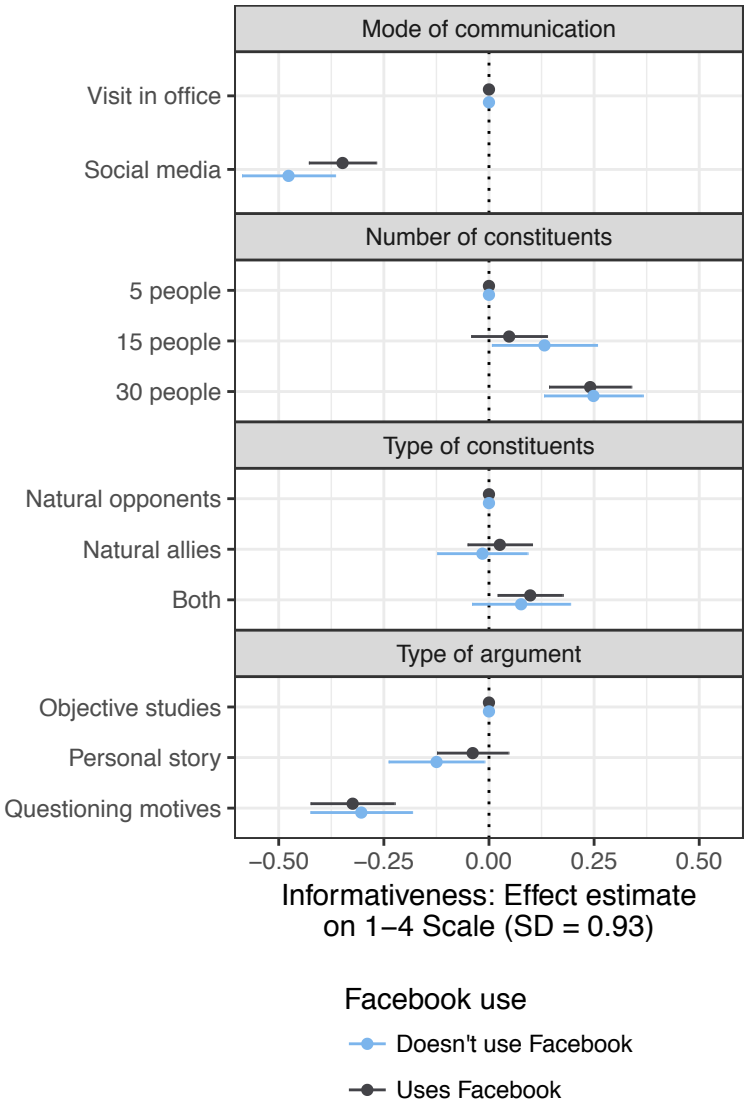

Figure A-6: Outcome: Informativeness, split by Facebook use.

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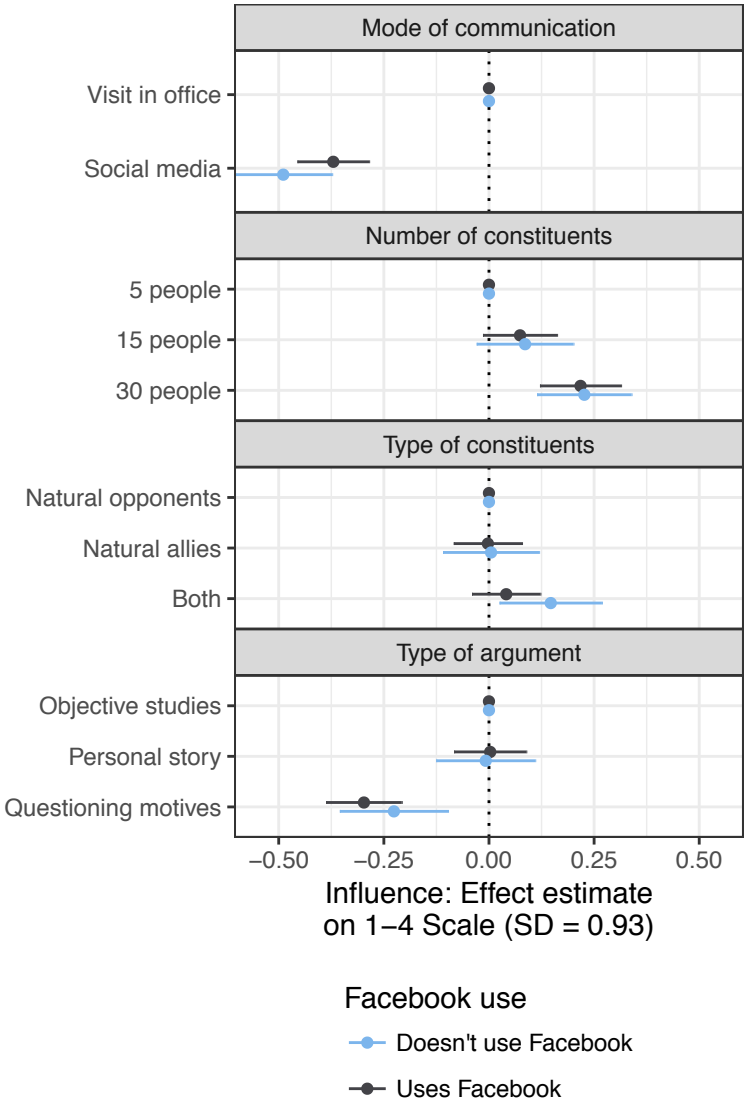

Figure A-7: Outcome: Influence, split by Facebook use.

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D.4 Constituency Population

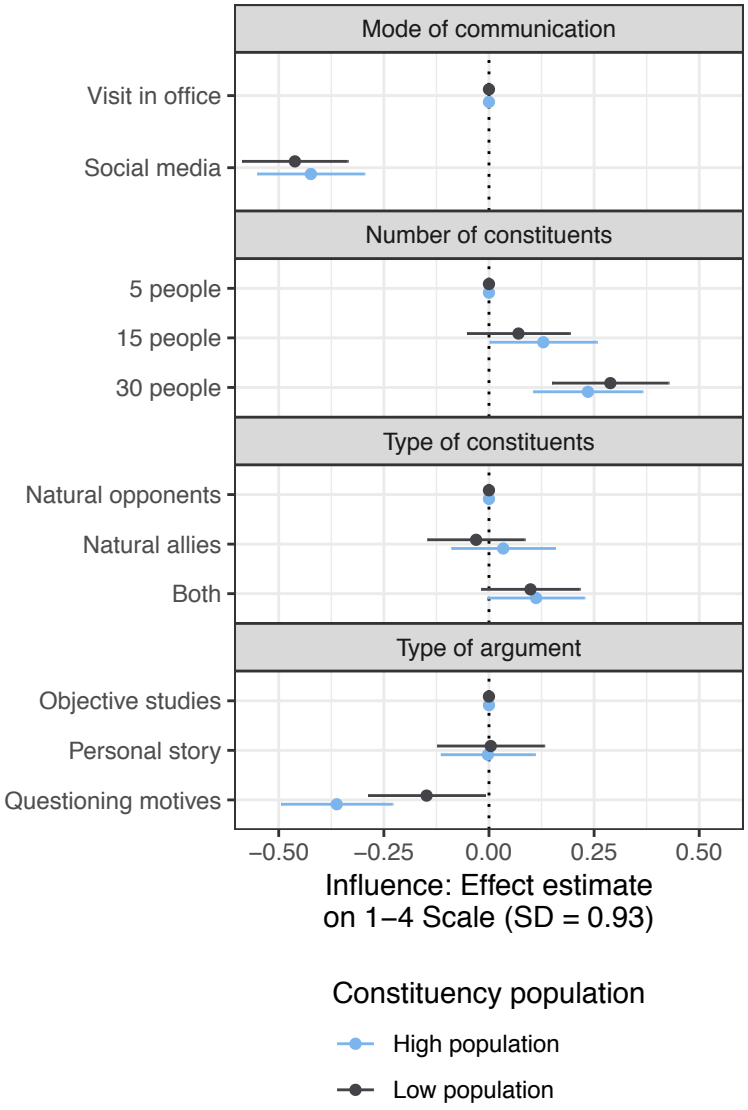

Figure A-8: Outcome: Influence, split by constituency population.

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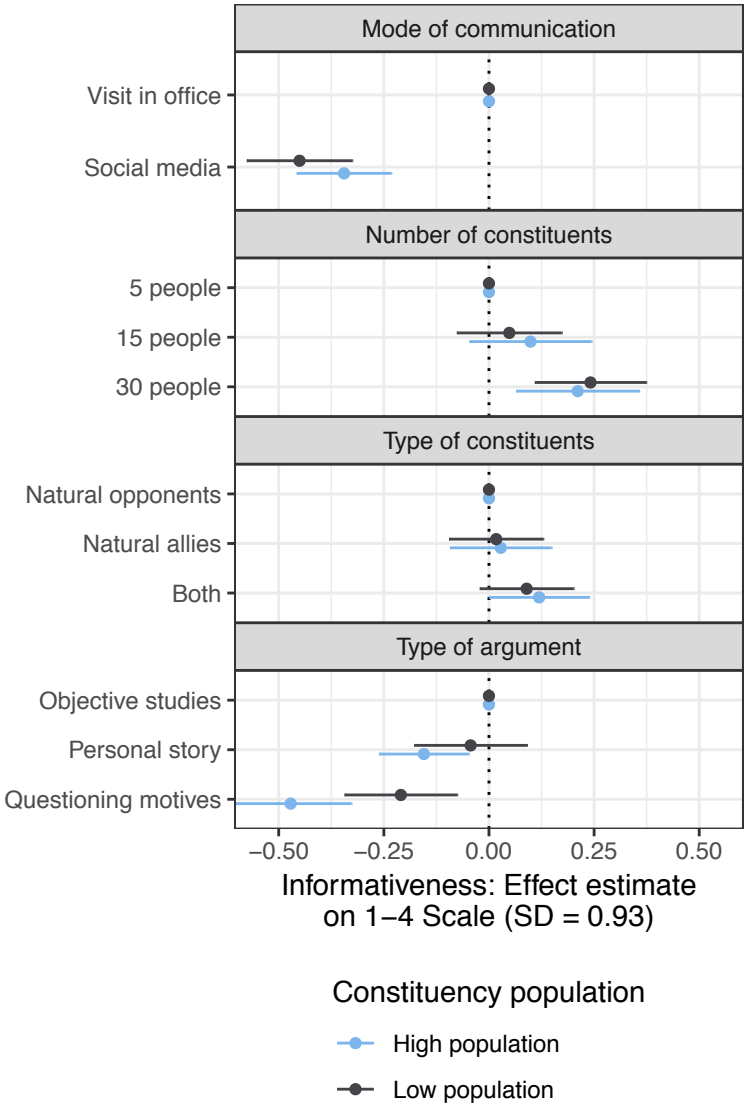

Figure A-9: Outcome: Informativeness, split by constituency population.

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D.5 Constituency Urbanness

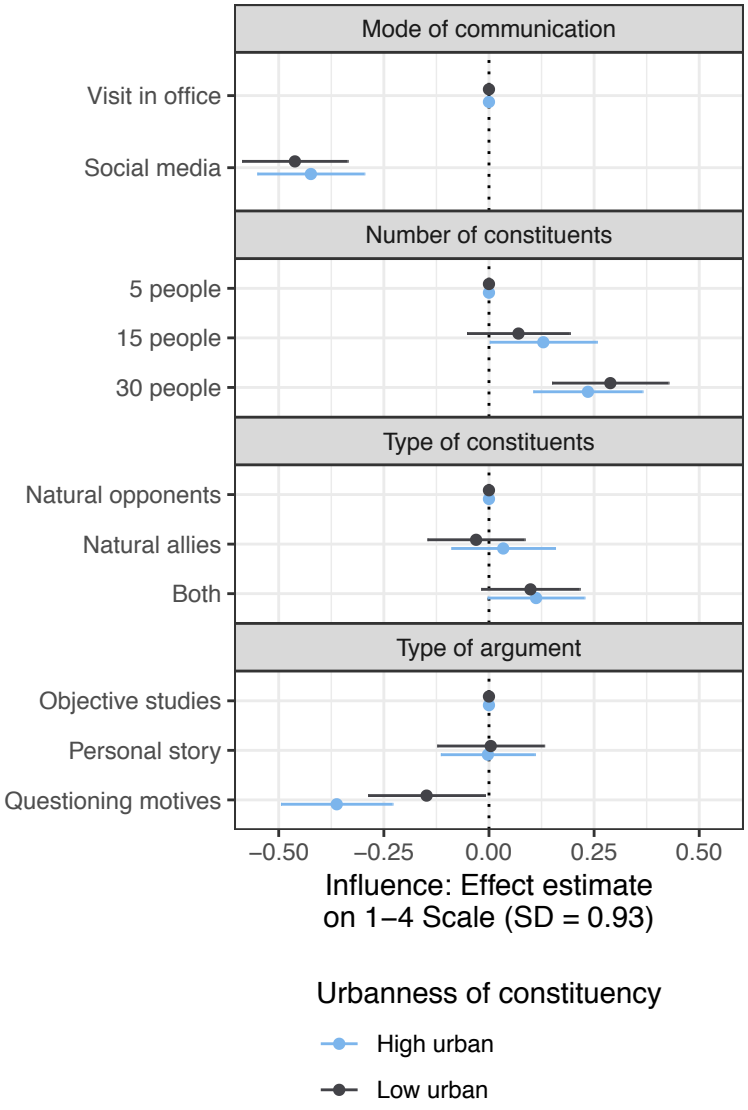

Figure A-10: Outcome: Influence, split by constituency urbanness.

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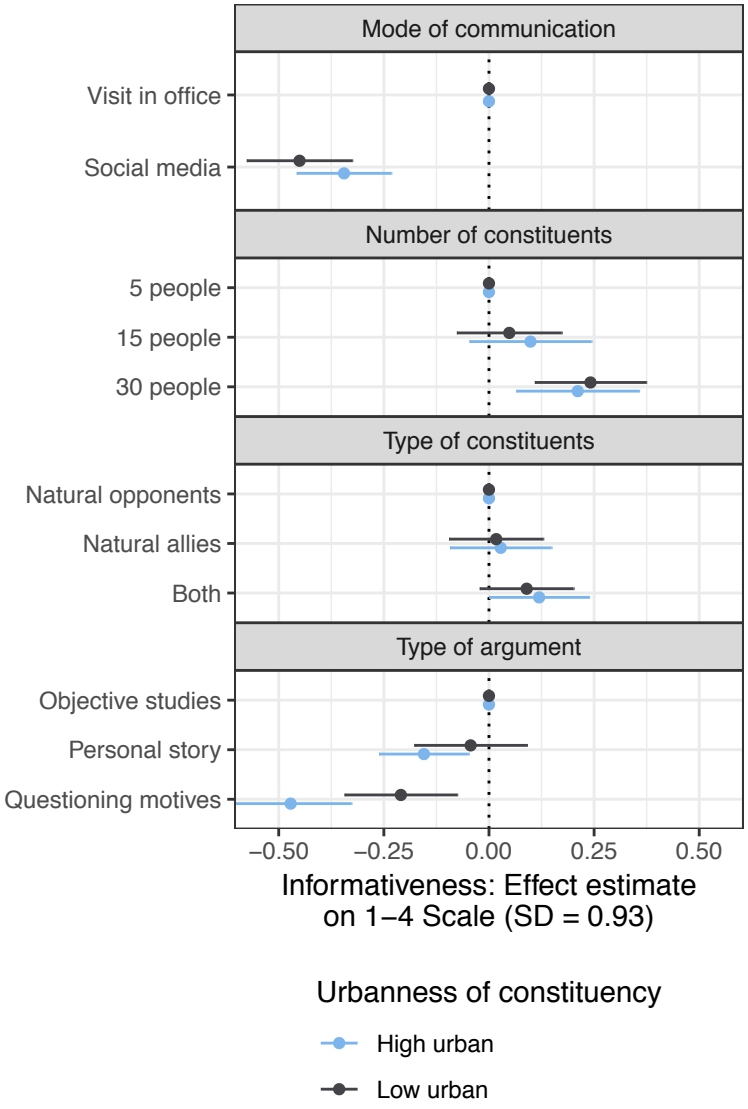

Figure A-11: Outcome: Informativeness, split by constituency urbanness.

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D.6 Constituency Education

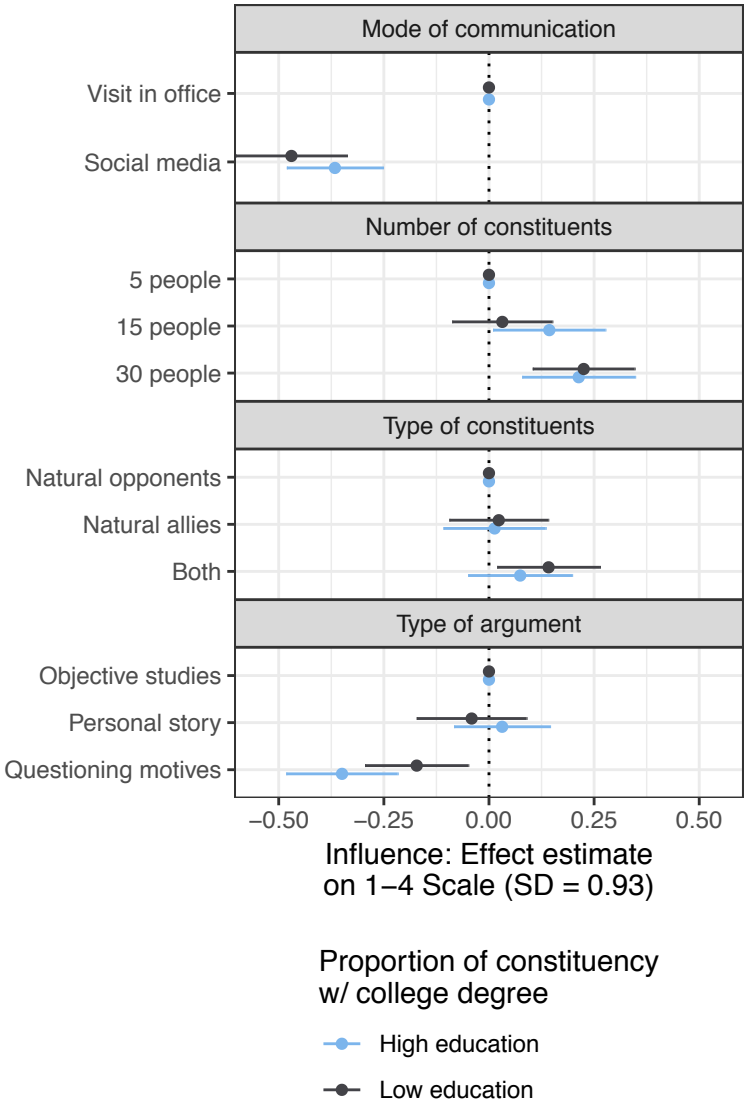

Figure A-12: Outcome: Influence, split by constituency education.

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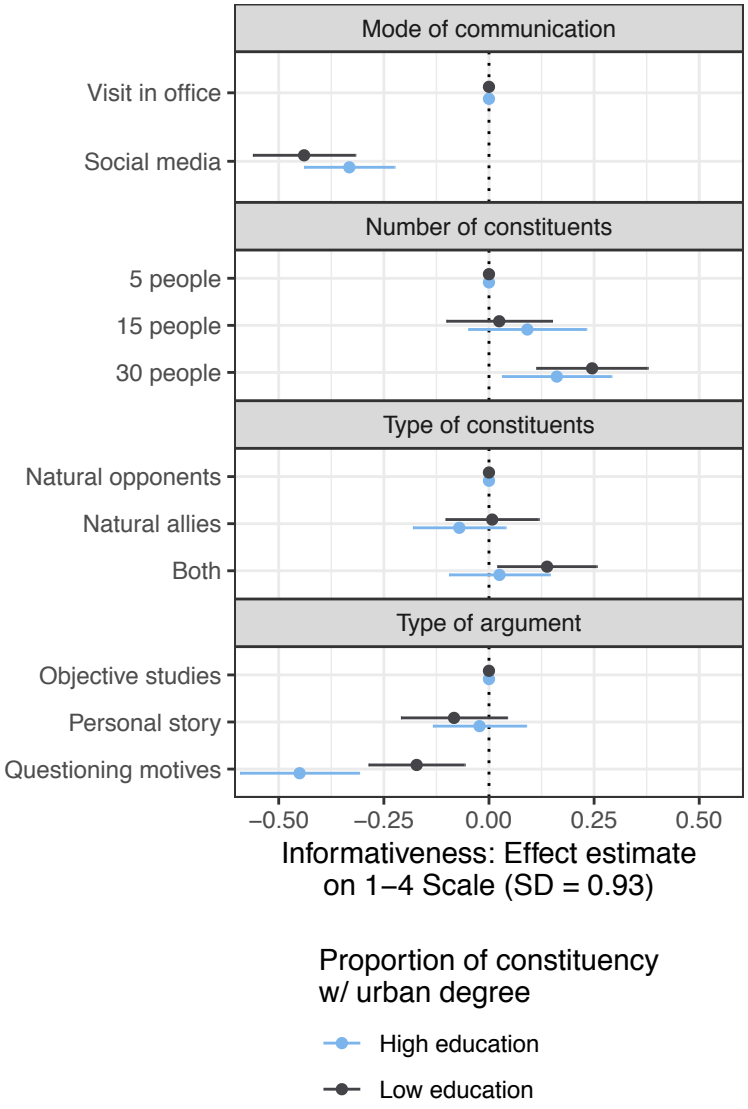

Figure A-13: Outcome: Informativeness, split by constituency education.

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