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UNIVERSITY OF CALIFORNIA SAN DIEGO

**Through the Grapevine: Essays on the Consequences of Interpersonal Political  
Communication**

A dissertation submitted in partial satisfaction of the  
requirements for the degree  
Doctor of Philosophy

in

Political Science

by

Taylor N. Carlson

Committee in charge:

Professor James Fowler, Chair  
Professor Marisa Abrajano  
Professor Cheryl Boudreau  
Professor Seth Hill  
Professor Craig McKenzie  
Professor Margaret Roberts

2019

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The dissertation of Taylor N. Carlson is approved, and it is acceptable in quality and form for publication on microfilm and electronically:

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Chair

University of California San Diego

2019

DEDICATION

To Bud and Sharon Fritz.

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Chapter 3, in full, is a reprint of the pre-publication version of the material as it appears in the *American Political Science Review* 2019. Carlson, Taylor N. 2019. “Through the Grapevine: Informational Consequences of Interpersonal Political Communication.” *American Political Science Review*. The dissertation author was the primary investigator and author of this paper. The data collected in this chapter were made possible by the National Science Foundation (SES 1423788), with Jaime Settle as the principle investigator.

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ABSTRACT OF THE DISSERTATION

**Through the Grapevine: Essays on the Consequences of Interpersonal Political Communication**

by

Taylor N. Carlson

Doctor of Philosophy in Political Science

University of California San Diego, 2019

Professor James Fowler, Chair

Americans are increasingly concerned about where we learn about politics. The reality is that many Americans learn about politics from conversations with friends and family. But how is information transmitted by our peers different from information communicated by the media? More importantly, what are the consequences of relying on our peers for information about politics relative to seeking information from professional news outlets? In the face of fake news, misinformation, and polarization, this dissertation focuses on understanding the content and consequences of interpersonal political communication. Ultimately, I argue that reliance on social information leads to negative informational and attitudinal outcomes, while opening the



door for increased political engagement.

Chapter 1 serves as an introduction that outlines my theory about why (and how) information becomes distorted through social transmission and why this could affect political behavior. Chapter 2 introduces a research design called a telephone game experiment that allows researchers to examine how individuals summarize information from the news and how it changes as it flows through communication networks. A subsequent version of this chapter has been published in the *Journal of Politics*. Chapter 3 uses the design developed in Chapter 2 to examine information transmission about economic performance and investigate the consequences of exposure to a news article or a social summary of that article. The results suggest that individuals can learn just as much from their peers as they can from a news article if they receive information from someone who is more knowledgeable than they are and is a copartisan. However, the information sources lead to divergent patterns in attitudes, such that partisan bias in the social information could influence subjective evaluations. A subsequent version of this chapter is forthcoming in the *American Political Science Review*.

Chapter 4 uses data from two nationally representative surveys to show that individuals who report relying on conversations with others for information about politics are more likely to believe political rumors. Chapter 5 provides a brief conclusion to the dissertation, highlighting important avenues for future research.

# 1 Introduction

I will add, that the man who never looks into a newspaper is better informed than he who reads them; inasmuch as he who knows nothing is nearer to truth than he whose mind is filled with falsehoods & errors. He who reads nothing will still learn the great facts, and the details are all false. —Thomas Jefferson, Letter to John Norvell, 14 June 1807

For centuries, Americans have been concerned about how and where we learn about politics. In the 1800s, Thomas Jefferson was concerned about the propaganda and misinformation contained in newspapers, which were certainly not regarded as objective information sources at the time. The founding father boldly suggested that individuals who read newspapers were less informed than those who did not. Fast forward to the 20th century as individuals began to question how a rapidly changing media ecosystem would affect political awareness. With technological advances enabling information to be distributed via newspaper, radio, and television, individuals had more access to information than ever before, yet – as best we can tell – levels of political knowledge stayed the same. The onset of cable news posed a new threat — were Americans being exposed to biased information from partisan cable news programming? Finally, we move forward to the growth of the Internet, giving us even more access to information, but with varying levels of credibility. The Internet not only allowed professional news outlets from across the political spectrum to disseminate their stories faster and more broadly than ever before, but it also allowed anyone to act like a journalist. From the expansion of political blogs in the early 2000s

to the armchair political pundits on social media we see today, the information environment has changed dramatically.

Despite all of these changes in technology and the informational concerns that came with them, there has been one constant source of information that has gone largely overlooked in recent scholarship: each other. Even in 1807, Thomas Jefferson noted that someone who does not read the newspaper will still learn the important facts. But how? Where are those who avoid, or cannot, read the newspaper learning about politics? Where do people who do not, or cannot, watch the news on TV learn about important political events, candidates, and policies? What about those who do not engage on social media — or those who deliberately opted out of social media after the scandals citing Facebook and Twitter as catalysts for fake news and toxic political content? All of these people who have opted out of acquiring political information from a particular media source have always had their peers upon whom to rely. Indeed, these news hermits might still be friends or colleagues with people who consume the news who are able to then transmit the highlights of the information to them.

This idea that individuals who avoid the news can learn about politics from their friends is not new. Some of the seminal theories in political science suggest that turning to our peers could actually be advantageous. Those following the Downs (1957) tradition would argue that individuals facing high information costs should forego sifting through the news, and instead turn to better informed members of their social networks who also share their preferences to cut information costs and acquire just enough information to vote in line with their interests. This Downsian view of using more knowledgeable, like-minded social connections as an informational shortcut is akin to the “two-step flow” theory of communication (Lazarsfeld, Berelson, and Gaudet 1944; Katz 1957; Katz and Lazarsfeld 1955), which has been highly influential in developing our understanding of interpersonal political information diffusion.

The “two-step flow” theory suggests that information flows from the mass media to a group of politically interested, engaged, and motivated people (“opinion leaders”), to others

who are less interested and engaged in politics. In this model, individuals are rational, utility-maximizing agents who seek to minimize the costs of political information acquisition by asking informed members of their social networks instead of seeking the information from the media themselves (Downs 1957; Katz and Lazarsfeld 1955; Zaller 1992). Some scholars have critiqued the two-step flow, arguing that opinion leaders only communicate with other opinion leaders (Troidahl and Van Dam 1965), that there is actually a one-step flow from the mass media to all individuals (Deutschmann and Danielson 1960), or that there is a one step flow of initial information, but a two-step flow of influence and beliefs (Troidahl 1967). However, there is strong empirical evidence for the two-step flow, especially in online social media contexts (Wu et al. 2011). The two-step flow is thus a good way to characterize how many individuals access political information with which to make voting decisions.

Despite decades of research on the two-step flow, its consequences for political behavior remain under-explored. Several studies have been published about the impact of socially supplied information on persuasion and vote choice, largely based on highly controlled behavioral economics experiments (Ryan 2011; Ahn, Huckfeldt, and Ryan 2014; Pietryka 2016). These studies argue that political discussion networks and socially supplied information can act as good information shortcuts, as formal models had previously predicted (Lupia and McCubbins 1998). But, there are several theoretical consequences of the two-step flow that have not yet been deeply explored, largely because the empirical research on the topic has abstracted away from the content of the communication itself.

In this project, I argue that relying on conversations with others to learn about politics leads to informational disadvantages, while simultaneously increasing political engagement, relative to seeking information from the news media. Carefully considering how the content of information changes as it flows from the media to opinion leaders to others, I show that information gets increasingly distorted, generally including less precise information that is supplemented with the opinion leaders' biases. Moreover, individuals who are exposed to this distorted information

learn less, are susceptible to persuasion, and are more likely to believe political rumors than those who are exposed to information from the news. However, all is not lost. If individuals receive information from someone who shares their partisanship and is more knowledgeable, many of these negative consequences disappear. The challenge, then, is ensuring that individuals are able to accurately identify and rely upon individuals in their social networks who meet these two criteria. Failure to do so results in less learning, persuasion, and misinformation.

Beyond the informational consequences that shape how individuals come to understand and think about politics, I argue that social information can have a mobilizing effect absent from information in the media. As individuals transmit information from the news to their peers, I show that they inject mobilizing calls to action. Instead of simply relaying information about the news, they encourage their peers to act on this information. These literal calls to action in the content of the messages paired with the mobilizing effects of social pressure to engage in politics lead individuals relying on their peers for information to be more likely to engage in politics. This could be viewed as a good thing. On the one hand, it could be the case that those who are generally less interested in politics are becoming more likely to engage because of their political conversations with their peers. Increased engagement is generally viewed as good for democracy. However, if it is also the case, as I show, that individuals who rely on these conversations for information are less informed and more likely to be misinformed, then social information could be inadvertently mobilizing an underinformed electorate.

## **1.1 The News or My Friends?**

Why do individuals choose to learn about politics from their friends instead of the news? Choosing an information source is an important decision. The majority of the research in political science on this topic focuses on why individuals choose one media outlet, say Fox News, over another, say MSNBC. Some still focus on the choice to consume political news at all, when there

are ample opportunities for (more interesting) entertainment options out there today (Arceneaux & Johnson 2013). All of this research, however, assumes that individuals are turning to some form of media, where professional journalists, whether they be news broadcasters, writers for a newspaper, or radio personalities, are transmitting the information. Very little research to date explores the decision to consume information from a peer instead of a news outlet. In fact, examining the media consumption questions in the most prominent surveys in the field (e.g. ANES, CCES, GSS, Pew, CCAP) does not include other people as an option for an information source.

My first task in this endeavor to understand the consequences of relying on our peers for information is to unpack why individuals choose their peers as a primary information source in the first place. Because the major surveys in the field do not include questions that allow me to tap into this, I added original questions to a wave of the 2016 Cooperative Campaign Analysis Project (CCAP). I asked respondents where they typically get information about politics, candidates, and elections. After indicating whether they get most or all of their information directly from media sources or directly from other people, I included an open-ended follow-up question about why they choose to get most of their information from their peers or from the news. An independent research assistant coded all of these responses into categories, as shown in Table 1.1. The results suggest that the number one reason for choosing others for information is the same as the number one reason for choosing the news. Trust.

**Table 1.1:** Reasons for Choosing Information Source

|                                   | Whole Sample | Media | Peers | n   |
|-----------------------------------|--------------|-------|-------|-----|
| Do not trust other source         | .21          | .19   | .33   | 210 |
| Other source is too biased        | .20          | .22   | .11   | 202 |
| Other source has less information | .15          | .12   | 0     | 151 |
| Other source is harder to access  | .10          | .10   | 0     | 102 |
| Want to do own research           | .09          | .07   | 0     | 86  |
| Do not like discussing politics   | .06          | .06   | 0     | 62  |
| Other source has less variety     | .05          | .04   | 0     | 51  |
| No access to other source         | .05          | .06   | 0     | 47  |

In contrast to the classic theories on the two-step flow that suggest that we can use our peers as an informational shortcut when the information costs are too high, access to information

was not a common reason for choosing peers. In fact, none of the individuals who report getting most or all of their information from their peers reported that access to information from the news affected their choice to rely on their friends. Instead, individuals appear to be turning to the source they trust the most, whether that be the media or their friends. This is especially prominent among those who rely on their peers and distrust the media. Trust in media has been declining over the past several decades, particularly with increased attention to “fake news” in the wake of the 2016 election. It could be the case, then, that individuals might be even more likely to turn to their peers today than they were before, but we lack the data to appropriately test this.

Bias is the second most commonly cited reason for choosing our information sources. About 11 percent of individuals who rely on their friends for information reported doing so because they thought the media was too biased; whereas about 22 percent of those who prefer the news reported doing so because they thought their peers were too biased. There is an abundance of research on partisan media bias, suggesting that there are sources with a partisan slant, but the differences might not be as dramatic as we think (e.g. Budak et al. 2016; Gentzkow and Shapiro 2010; Groseclose and Milyo 2005; Arceneaux and Johnson 2013). Yet it is not surprising that individuals perceive bias in the media environment and (at least report that they) try to avoid it. Choosing to avoid our friends as information sources to avoid bias is consistent with both the research presented in this project and concerns from the seminal works. Seminal research on using our peers for informational shortcuts suggests that we must rely on individuals who are more knowledgeable than us and share our partisanship in an effort to avoid being exposed to information that is biased in a direction against our interests (Lupia and McCubbins 1998). Moreover, recent work suggests that political conversations can amplify the bias in partisan media (Druckman, Levendusky, and McLain 2018). As I show later in this project, individuals do indeed send biased information to their peers, even if that information originated from a non-partisan, neutral source.

These results suggest that there is something else going on that leads individuals to turn to

their peers for information about politics. Turning to our peers might be an informational shortcut, but it does not seem to be the primary reason why individuals report choosing them over the news. This could in part be a function of increased access to the news with the growth of the Internet, compared to the 1940s when the two-step flow theory was developed. Regardless of the reason, it is important to deeply investigate and update our understanding of why individuals choose one information source over another. Uncovering that avoiding sources we distrust and view as biased are the primary motivators has implications for how seriously we expect individuals to take information presented to them from each source. That individuals do not simply view their peers as a cost-saving mechanism, but rather a less biased, more trustworthy information source implies that they might be more heavily influenced by information that comes from their peers, even if that information is actually distorted, less accurate, and biased, as I show throughout this project.

Moreover, the profile of someone who chooses to rely on their peers for information is different from the profile of someone who chooses the media. In particular, those who report relying on social information have significantly lower levels of education. About 19 percent of respondents without a high school diploma reported learning about politics from other people, whereas only about 5-7 percent of individuals in all other education levels reported that they learned about politics from their peers. Social information consumers were significantly less interested in politics and had lower levels of political knowledge than their media information consuming counterparts. This could mean that those who rely on their peers are less equipped to question the information presented to them by their peers, which is likely to contain unexpected biases and inaccuracies.

Altogether, when we consider the reasons for choosing to learn from our friends instead of the news, we start to see that most are not doing so to save time. This might be an important bonus, but it is not the primary driving force behind the decision to rely on our friends as informants. This, paired with the demographic and political differences between social and media information



consumers, sets the stage for considering the consequences of learning from our peers in lieu of the media. While individuals might still trust their friends more than they trust the media, they are likely exposed to more bias and less accurate information than they think, which could have immense effects on their knowledge, attitudes, and behavior.

## **1.2 What are the Consequences of Learning from Others?**

There might be hidden costs to the information we gather from others, particularly with regard to its quality. Most research on social information transmission thus far has focused on whether it leads to persuasion, attitude change, and conformity within social and political discussion networks (Huckfeldt, Johnson, and Sprague 2004; Huckfeldt and Sprague 1995; Carlson and Settle 2016; Levitan and Verhulst 2016). Furthermore, in many studies of social information transmission, the “information” of interest is often the political preferences of one’s political discussants (Huckfeldt and Sprague 1987). While this is important information to know, it does not sufficiently capture what individuals are learning about politics, candidates, and elections through their conversations with other people, and thus does not fully capture how (and what) information is flowing from the media to opinion leaders, to other individuals.

In an idealized version of the two-step flow reality, individuals who are interested in politics (opinion leaders) would consume information about candidates and policies from the media and then transmit that information to their associates who are less interested in politics. The information that the opinion leaders transmit to others would be free of bias, complete, and accurate, thus allowing the less interested individuals to make their own voting decisions, based on accurate information, while still saving time sifting through information from the media on their own. Given that the results from my survey work suggest that trust and objectivity are the most important, an idealized setting would not only save time, but would also mean that opinion leaders are communicating unbiased and trustworthy information. However, there are

several reasons we might expect the information that opinion leaders transmit to fall short of these idealized expectations.

### **1.2.1 Information Distortion**

There are several reasons why we might expect the quality and content of information transmitted socially to be different from information transmitted directly from the media. At a very basic level, the simple process of summarizing information naturally means that some information is going to be omitted. Humans are subject to limitations in memory and cognitive capacity, which can restrict the amount of information that we can transmit to others. When someone reads, watches, or listens to political information in the news, he or she is unlikely to recall every detail (Findahl and Hoijer 1985; Neuman 1976). Social information consumers, in theory, are turning to opinion leaders specifically for these shortened summaries, leaving the work of locating and synthesizing the universe of political information to the opinion leaders, reducing their own information costs. However, these shortened summaries can also be subject to human error in generalizing information, forgetting minute details, or misunderstanding the content. As I demonstrate in Chapter 2, individuals who get information about politics from others are likely to be exposed to a less complete, less precise, and less accurate set of information than those opinion leaders who get their information directly from the media.

The cognitive limitations described above are likely to impact information transmission about any topic, not just politics. However, there are some unique features about political communication that might further complicate our ability to learn from our peers. From the get-go, individuals are likely to interpret information in a way that is consistent with their political beliefs. This could be because of motivated reasoning (Kunda 1990; Taber and Lodge 2006; Lodge and Taber 2000), or partisanship acting as a “perceptual screen,” thus coloring political information in light of one’s partisan preferences (Campbell et al. 1960). Regardless of the underlying cause, individuals could read an objectively neutral news article and interpret the information to support

their ideas. Individuals interpret the news in a way that largely confirms their preexisting beliefs.

When the opinion leaders then go on to transmit information to others, these biases affect the information that they report to others in political conversations. The information becomes distorted in favor of their own preferences. Why does this occur? Why do individuals transmit information that makes their party look better, even if it abstracts away from the truth? The desire to transmit information that supports one's own beliefs can come in (at least) two forms. First, opinion leaders have some degree of control over the specific pieces of information they choose to transmit to others. This filtering process of selective exposure means that opinion leaders could be transmitting accurate information to others, but if they only include information that makes their preferences look good, failing to transmit information that makes their preferences look bad, they could be biasing the information other individuals have to make voting decisions. Second, opinion leaders could misrepresent the facts, thereby distorting the information in a way that favors their preferences. Opinion leaders could be doing this unintentionally, driven by the biases in interpreting the information in the first place, or they could be doing this strategically. Opinion leaders might find it advantageous to deliberately distort the information they share with others, particularly if they believe it could persuade them to support their views.

Scholars have started to explore whether individuals will send biased information to other people primarily in laboratory experiments. For example, Ahn, Huckfeldt, and Ryan (2014) conduct a series of experiments to test whether the electorate is self-educating. They argue that "Political communication is not an antiseptic, politically neutral information transfer, and it is not necessarily an exercise in civic enlightenment. Rather, it is an extension of the political process in which some people are more influential than others." (p. 2). Of particular importance, the authors show that participants in their experiments do reject information that is "wildly biased," but slightly biased information can influence participants' voting decisions, especially those who are uncertain or receive more than one piece of biased information. Ahn, Huckfeldt, and Ryan (2014) thus demonstrate that opinion leaders will intentionally send biased information to others,

when incentivized to do so, and this biased information can negatively impact the voting behavior of the information recipients.

While the evidence presented by Ahn, Huckfeldt, and Ryan (2014) is strong, the highly controlled experimental setting leaves room for further exploration to connect the findings to real world information processing. The experiments used by Ahn, Huckfeldt, and Ryan (2014) typically involve individuals voting for Candidate A or Candidate B, with individual and candidate policy preferences indicated by a number on a scale. Participants are given a monetary incentive for choosing the candidate whose preference number is closest to his or her own. In some conditions, participants were randomly assigned different levels of information about the candidates' preferences and could ask others for information. The only information sent and received involved a number. This makes it easy to cleanly measure the magnitude of bias (e.g. if a Candidate B's true preference was 6, but a participant who preferred Candidate A told another participant that Candidate B's preference was 3, the bias could be measured by subtracting the difference between the true preference and the communicated preference ( $6 - 3 = 3$ )). However, as discussed, information in the real world is complex and can be distorted in many different ways.

In this project, and in my previous related work (see Carlson 2018, 2019), I build on the experiments conducted by Ahn, Huckfeldt, and Ryan (2014) to deepen our understanding of how information is actually changing through social communication. I begin by analyzing how socially communicated information is different from information provided by the media. I use novel experimental designs that ask individuals to read news articles and transmit information about them to others. These telephone-game experiments (Carlson 2018; Aarøe and Petersen 2018) allow us to examine how individuals actually communicate the information from news articles. What we lose in experimental control and measurement precision, we gain in understanding nuance in political communication. Moreover, I later apply this framework to observational data to analyze the change in text between full news articles and the social commentary surrounding

them on social media. I use both hand-coded measures of information distortion as well as automated text analysis to examine the ways in which information is changing as it diffuses. The overarching expectation in all of this work is that information will become less precise and less accurate as it flows from the media, to individual, to individual.

## **1.2.2 Impacts on Behavior**

Demonstrating the ways in which information changes as it flows from the media, to person, to person is an important contribution in and of itself, but the next question raised is, “So what?” How does the changing information impact political behavior? I begin to answer this question in the remaining chapters of this dissertation, I explore whether the information source affects (1) how much individuals learn about the content of news articles, (2) attitudes toward policies and politicians relevant to the news articles, and (3) belief in political rumors and conspiracy theories. In the broader project, I also examine how information source affects our ability to vote in line with our interests, and our decision to engage in politics at all.

### **Learning**

Why would the source and nature of information impact how much people learn? There are many potential sources from which Americans could learn about politics, but these sources fall broadly into two categories: other people and the media. Most scholars agree that most Americans lack factual knowledge about politics (Delli Carpini and Keeter 1996; Campbell et al. 1960; Zaller 1992), despite the normative expectation that citizens are to be well-informed about political affairs (Habermas 1984; Lipset 1960; Berelson, Lazarsfeld, and McPhee 1954; Campbell et al. 1960). It is thus worth exploring how individuals acquire political information, specifically focusing on how their chosen information source influences the amount and accuracy of information they acquire.

As discussed, there are theoretical reasons why we might expect socially transmitted

information to be different from information transmitted directly from the media. Specifically, socially transmitted information is likely to be less precise and contain fewer units of information than information communicated by the media itself. On the one hand, we might expect individuals to learn the same amount from socially communicated information as information from the media. If opinion leaders are appropriately summarizing information and packaging it in a way that is more accessible than the longer, more detailed information provided by the media, then individuals might learn the same amount, regardless of the information source. That is, opinion leaders could be operating in the idealized two-step world in which they are communicating unbiased, trustworthy, concise information that allows the recipients of that information to become better informed.

On the other hand, if the socially communicated information does not contain enough information, leaves out crucial details, or contains inaccurate or biased information, individuals might learn less accurate information from other people than they would have learned from the media. Given the mechanisms outlined previously and preliminary evidence discussed, this seems likely. Opinion leaders are likely to fall short of the idealized two-step world.

The impact of information source on learning is much more complex than simply comparing socially transmitted information to information from the media. In both cases, the *specific* source is likely to impact learning. For socially transmitted information, the level of agreement between the opinion leader and the information consumer will likely impact how the consumer interprets the information. For instance, if the consumer disagrees with the opinion leader, he or she is likely to discount the information sent and consider what kind of bias is introduced by the opinion leader (Ahn, Huckfeldt, and Ryan 2014), considering information from someone who disagrees or has incongruent preferences to be less informative (Boudreau, McCubbins, and Coulson 2009). In this case, the opinion leader is likely to send biased information that is inconsistent with the consumer's prior beliefs (Ahn, Huckfeldt, and Ryan 2014), and individuals are slower to process inconsistent information (Lodge and Taber 2013; Taber and Lodge 2006),

and overall individuals have a harder time learning inconsistent information (Hill 2017). If the opinion leader holds views different from the consumer, then consumers might learn more from the media instead of the socially supplied information. When the opinion leader and information consumers hold similar preferences, the consumers might learn similar amounts of information socially as they would from the media.

Let me be clear in saying that information supplied by the media is not perfect. Naturally there is partisan bias in the news media that could similarly impact the information that individuals learn. Moreover, just as with socially supplied information, the degree of agreement between the specific news source and the consumer could impact how the consumer interprets the information. For instance, a Democrat might discount information communicated in an article from Fox News, anticipating a Republican bias. This reinterpretation could help the consumer identify which parts of a news article are likely to be more accurate and which are fraught with bias, but it could also lead him or her to errantly interpret accurate information as inaccurate.

The ability of an individual to learn about politics from either the media or other people could rely in part upon their ability to accurately identify the political leanings of the information source. In both cases, this requires some degree of political sophistication, and more politically sophisticated individuals will likely be better equipped to identify the political preferences of their potential informants. Ahn, Huckfeldt, and Ryan (2014) highlight that data from Huckfeldt and Sprague (1987) suggest that individuals can accurately perceive agreement within their social networks about 78.4% of the time, and 72.8% of the time they can accurately perceive the absence of agreement. Overall, individuals are pretty good at guessing the political preferences of their political discussants (often friends and family members). In a working paper, Hill and Carlson show that individuals are able to accurately update their beliefs about which presidential candidate a randomly selected member of the electorate supported in the 2016 election when presented with information such as his or her party identification, opinion on the most important problem facing the U.S. today, race or ethnicity, gender, income, and state of residence. Beyond demographic

and political characteristics, there is also some evidence to suggest that individuals are able to accurately guess partisanship and ideology based on apolitical cues, such as movie preferences, preferred web browsers, or how messy one's desk is (Carlson and Settle Chapter 3), and apolitical Facebook activity (Settle 2018). Although many Americans may be able to infer political leanings, those who are more interested and engaged in politics make more accurate inferences, leaving a substantial portion of the population likely unable to accurately detect the political leanings of potential informants and thus less likely to identify potential bias.

Beyond having shared preferences, classic work on opinion leadership suggests that we need to turn to people who are more knowledgeable than we are. Part of this is largely implied when someone who has not read a news article receives information from someone who has. However, we can also consider general political sophistication, knowledge, and awareness as features that might make someone a good opinion leader. Similar to the challenge in detecting the political views of the informant, detecting knowledge levels can sometimes be challenging. Ryan (2011) finds that individuals often over-estimate the knowledge levels of their peers. As a consequence, in reality, those who rely on social information might be turning to individuals they think are more knowledgeable than they really are. This might disrupt the potential benefits of social information and exacerbate the possibility that individuals are exposed to incomplete or inaccurate information that leads them to learn less.

## **Attitudes**

I just argued that information from our peers and information from the media could lead to differential learning, so it seems natural to expect the information source to also affect our subjective attitudes. If we use information to update our attitudes, and if we are receiving information that varies in content, we should expect to have different attitudes. At first glance, this sounds intuitive, but the relationship between information and attitudes is not so simple. Some scholars question whether learning facts can affect our attitudes at all (Kuklinski et al. 2000).



Moreover, there is mounting evidence that individuals sometimes fail to update their attitudes to align with the facts, even when they believe those facts to be true (e.g. Gaines et al. 2007; Nyhan et al. n.d.). While the jury is still out on the extent to which learning objective facts affects our subjective attitudes, it is important to consider how the presentation of those facts by peers and the media might lead individuals to update their attitudes differently.

On the media side, there is an impressive scholarly debate about the relationship between media and learning, as well as media and attitudes. Dating back to the seminal work in American political behavior, we see that scholars were initially unsure about the media's ability to influence opinions (Berelson et al. 1954; Campbell et al. 1960). However, most research since then, especially experimental studies, challenges this minimal effects hypothesis and argues that the media can impact public opinion (e.g. Iyengar and Kinder 1987; Zaller 1992; Bartels 1993; Popkin 1994). Regardless of the mechanism through which the media can influence attitudes, there is mounting evidence that it can indeed lead individuals to update their beliefs.

On the social side, the social networks literature confidently suggests that there is a strong degree of social influence in attitude development. Individuals can persuade members of their social networks (Huckfeldt and Sprague 1995; Huckfeldt, Johnson, and Sprague 2004). Of particular importance to this project, Druckman, Levendusky, and McLain (2018) show that political conversations can actually be more influential on attitudes than media exposure. They find that individuals who were not exposed to any partisan media, but discussed politics with people who watched a partisan news clip, had more extreme attitudes than those who just watched the partisan news clip but did not have a conversation about it. This suggests that the two-step flow can be very powerful in influencing our attitudes.

Beyond the trickle-down effects of partisan media uncovered by Druckman, Levendusky, and McLain (2018), I argue that political conversations can have a large impact on attitudes, even from sources that were non-partisan. Earlier in this chapter, I explained reasons why we should expect opinion leaders to transmit biased information to their peers. The biases contained in social

information can have the effect of amplifying the bias in partisan media or even transforming non-partisan media into partisan information. The latter point is crucial, especially if those receiving the information do not recognize the potential bias. If individuals turn to a peer for information and know that he or she generally consumes non-partisan media, they might trust the information communicated in their conversations as objective. But, in reality, that information is likely to be tainted by the informant's preferences. In some ways, this presents a sneak-attack of partisan bias affecting our attitudes, despite our efforts to receive objective information.

Ultimately, we should expect the bias contained in social information to have a similar effect on attitudes as the bias contained in partisan media. However, given some of the challenges in identifying the partisan bias of our peers relative to media sources, we might have a harder time properly discounting the information from our peers and could be more susceptible to persuasion by learning from our peers than from a news outlet.

### **Misinformation and Political Rumors**

In addition to affecting our ability to learn facts and our subsequent attitudes, relying on our peers for information might also exacerbate beliefs in misinformation, political rumors, and conspiracy theories. Mostly focused outside of the political sphere, rumors are often regarded as spreading socially, especially via word of mouth (Allport and Lepkin 1945; Allport and Postman 1947; Loftus 1992; Lewandowsky et al. 2012). Rumors are actually considered influential and easily transmitted because they lack a clear standard of proof and are repeated through widespread social transmission (Fine and Ellis 2010; Berinsky 2012). Interpersonal communication, thus, is a central component to the spread of rumors.

When it comes to politics and misinformation, it is important to think about the difference between being informed and misinformed. Kuklinski et al. (2000) suggest that misinformed citizens form their policy preferences based on false, misleading, or unverified information that they believe to be true. In contrast, uninformed citizens know that they lack political information,

but either do not seek the information or rely on heuristics to participate in politics. Those who rely on their peers for information could presumably fall into both categories. However, here I am most concerned with assessing the extent to which interpersonal political communication can facilitate misinformation. Given all of the ways in which social information differs from that communicated by the media, as discussed previously, the social information environment is ripe for spreading misinformation.

Conversations can contribute to misinformation in (at least) two ways. First, opinion leaders can spread political rumors and misinformation that they learn from the media. Flynn, Nyhan, and Reifler (2017) suggest that media coverage “shapes the flow of false claims to the public both directly in its coverage and indirectly via its influence on elite behavior” (p. 141). This means that opinion leaders can be exposed to rumors, false claims, and misinformation as they regularly engage with the media. What Flynn, Nyhan, and Reifler (2017) miss, however, is that the process does not stop there. Opinion leaders can then go on to tell their friends about the rumors, much as non-political rumors can spread through word-of-mouth.

Second, opinion leaders could take initially accurate information from the media and distort the content so much that the information they present to their peers is inaccurate. Later in this project, I show that about 7 percent of the socially generated summaries of news articles contained at least one factual inaccuracy, even when the news article was initially accurate. In either case, individuals who rely on opinion leaders for information are likely to be exposed to misinformation. Moreover, because individuals have deliberately chosen to rely on their peers for information because they trust them more than the media, they are likely to believe the misinformation in the first place.

Individuals are certainly exposed to misinformation on the news. There is no doubt about that. But the reality is that the news is not the only way in which individuals can learn about and come to believe political rumors and conspiracy theories. At the intersection between the media and our peers lies one of the primary targets for facilitating misinformation: social media.

Several studies and news articles demonstrate that millions of individuals were exposed to false information on social media websites, such as Facebook and Twitter. The key here, though, is to consider the *social* component of social media. Above and beyond the spread of “fake news,” Anspach and Carlson (2018) show that misinformative commentary individuals post when sharing Facebook news articles can lead individuals to become misinformed, even when the news article itself is right next to the misinformation. Most striking, individuals appear to be more strongly influenced by the false content generated by the Facebook user (social information) than the content of the news article.

All of this together suggests that an important, yet under-explored, consequence of the two-step flow is exposure to misinformation. Whether the social information is communicated in face-to-face conversations or on social media, our peers are likely to have the ability to facilitate our exposure to misinformation. We are also more likely to believe false information when learn it from a friend because we have chosen that friend as a trustworthy information source.

### **Voting Behavior**

What do we make of all of this? I have argued that information from our peers can impact what we know, our attitudes, and our beliefs about political rumors, but why should we care? How do our knowledge, attitudes, and misinformed beliefs affect political behavior of consequence? Why would information source affect an individual’s ability to vote in line with his or her interests? Assessing whether Americans have enough information to vote in line with their interests (voting “correctly” or “rationally”) is one of the biggest problems with which political scientists grapple. Pessimistic scholars primarily from the Michigan School argue that Americans are too uninformed and disinterested (Campbell et al. 1960), and their opinions are too unstable (Converse 1964; Zaller 1992) to vote rationally. In contrast, other scholars advocate for a theory of “low information rationality,” which argues that people do not need full information to make rational decisions and have stable opinions. Instead, individuals can look to cognitive shortcuts

(heuristics) to emulate fully informed decisions (Downs 1957; Popkin 1991; Sniderman, Brody, and Tetlock 1991; Lau and Redlawsk 1997; Lupia 1994; Lupia and McCubbins 1998). Most immediately relevant to the work here, Downs (1957) argued that our social ties who (1) are better informed than we are, and (2) share our political preferences, should serve as powerful shortcuts. However, (Downs 1957) does not sufficiently consider how the information is changing as interested individuals transmit it to others who are less interested. As discussed, it is likely that information gets distorted as it propagates from the media, to person, to person. The question is: Is the information distorted so much that it leads someone to vote against his or her self-interest? The answer to this question yields the ultimate implication of information changes through social transmission.

I argue that in two-party general elections, individuals who get their information from the media will be equally likely to vote correctly as those who get their information from other people. Ultimately, I believe that cognitive heuristics, such as party identification, will triumph over distorted information, allowing individuals to vote in line with their interests regardless of the information source and quality. Extensive research has shown that cognitive shortcuts, such as party identification, ideology, endorsements, viability (polls), and candidate appearance (Lau and Redlawsk 2001), can help individuals vote *as if* they were fully informed, while saving on information costs in the process. In short, I expect that even if individuals are exposed to biased, inaccurate information about a candidate for public office, as long as they know the partisanship of the candidate and their own partisanship, they will still be able to vote in line with their interests, more often than chance. Absent such heuristics, however, the distorted information from our peers should make it more difficult for individuals to vote in line with their interests, compared to getting information directly from the media.

Because of the biases and inaccuracies that can plague social information, in situations where heuristics are absent, those receiving information from their peers are less likely to vote in line with their interests. This might occur in primary elections, in which partisanship is no

longer a useful cue, nonpartisan elections, such as for some local or municipal offices, or some ballot initiatives, especially if they are low-salience and there have not been prominent public endorsements on either side. All of these electoral decisions are important and are likely more susceptible to the challenges stemming from social information.

In sum, I expect individuals to be able to use heuristics, such as party identification, to vote correctly, regardless of the information to which they are exposed. Heuristics will help individuals overcome any deficits in information quality apparent in socially supplied information relative to information from the media. However, I expect heuristics to be most effective for politically sophisticated individuals and least effective for unsophisticated individuals.

## **Mobilization**

To this point in this project, I have theorized that (1) socially supplied information is more distorted than information from the media; (2) information source is likely to impact learning, attitudes, and (mis)perceptions; and (3) individuals should be able to use heuristics, such as party identification, to overcome variation in information quality when making voting decisions. If the information source and quality of information do not impact correct voting in many electoral contexts in which heuristics are available, then does it really matter where people get information? In this section of the dissertation, I argue that information source may not affect vote *choice*, but it may impact the decision to vote at all.

Social networks influence a variety of political behaviors, including political participation (Huckfeldt, Mendez, and Osborn 2004; Bond et al. 2012; Mutz 2002). Of particular importance, research on Get Out the Vote (GOTV) campaigns suggests that social information sharing can impact voter turnout (Gerber, Green, and Larimer 2008). For instance, Gerber and Green (2000) show that face-to-face canvassing increases turnout more than telephone calls and direct mail methods. While phone calls and direct mail could be considered social, face-to-face communication has the greatest emphasis on social communication. Even beyond these efforts by

researchers and political campaigns to mobilize voters through social contact, socially supplied information could have a mobilizing effect independent of a formal campaign. Outside of a targeted campaign context, when individuals receive political information from another person, it may be distorted from the information they could receive directly from the media, as shown elsewhere in this project, but it might encourage individuals to vote in ways that the media does not.

First, the social delivery of the information might signal social acceptance of participation, which could make the recipient more likely to want to participate him or herself. Even if the information isn't about voting, the social contact about politics could trigger a desire to vote that would be absent in information supplied from the media. Second, as information gets distorted as it flows from the media, to person, to person, individuals are likely to add information that could be mobilizing. For instance, opinion leaders could transmit information they obtained from the news, but then add comments about the importance of voting or personal opinions about getting involved in politics that would not be contained in information directly from the media.

### **1.3 Roadmap**

This dissertation proceeds in three core empirical chapters to examine the ways in which information changes as it flows from the news to person to person, and why it matters. I begin in Chapter 2 by introducing a research design called a telephone game experiment in which participants are asked to read a news article and write a message telling someone else about the article that they read. This design is used extensively in Chapter 3 and other related research outside of this dissertation, but as part of the broader project. The core idea behind the design is to showcase the ways in which information changes as we transmit information from the news to our peers. Previous research on social information transmission has focused extensively on the dyadic relationship between the sender (the opinion leader, or person who reads the news) and receiver (the person who turns to the opinion leader for information), with little-to-no attention

paid to the content itself. The key innovation in Chapter 2 is to develop a research design that allows us to examine not only the characteristics of the sender and receiver, but also the content of the information. Substantively, this chapter examines how information about presidential candidates in the 2016 primary elections changed through social transmission. The results suggest that information becomes much more sparse, vague, and is somewhat more prone to including misinformation.

Chapter 3 builds directly on Chapter 2 by examining the real consequences of these informational changes. While Chapter 2 demonstrated that information does change as individuals summarize the news for their peers, it does not show whether the information has become so distorted that it is no longer helpful to others. In Chapter 3, I test whether individuals learn more from reading a full news article or a summary of that news article written by another person. The results suggest that individuals learn more from a full news article than they do from a summary of that article. However, if individuals received information from someone who was more knowledgeable than they were and shared their partisanship, they learned the same amount as someone who read the full news article. This suggests that relying on our friends can be a valid information shortcut, but only if we rely on peers who are sufficiently knowledgeable and share our partisanship. Upon further examination, this result is largely driven by knowledge, which means that if individuals want to use their peers in lieu of the media for information, they must make sure that their peers are more knowledgeable.

Chapter 3 also examines the impact of the information source on attitudes, uncovering important differences between the media and our peers. The media seems to affect attitudes that are more objective and directly related to the content of the article, economic performance in this case. In contrast, information from peers tends to lead individuals to update their attitudes about tangentially related targets that have a more affective component, such as presidential approval. In particular, it seems that the partisan bias that individuals inject into the information they pass on to others can affect their subsequent attitudes. Chapter 3 shows that individuals who received



information from a Republican had significantly more positive attitudes toward President Trump than individuals who received information from a Democrat or the full news article. This means that social information can have similar effects of partisan media, even if the initial news source is objective. This is critically important because the literature on partisan media bias presents mixed conclusions about the effect partisan media has on polarizing attitudes. In particular, Arceneaux & Johnson (2013) argue that only a small portion of the public consumes partisan media in the first place and the effects of partisan media on attitudes are due entirely to self-selection. However, those in the public who are not selecting into partisan media directly might still be exposed to biased information by relying on their peers, whether they consume partisan information (Druckman, Levendusky, and McLain 2018) or not (Carlson 2019, Dissertation Chapter 3).

In Chapter 4, I examine the relationship between information source and belief in political rumors and misinformation. Although we certainly can (and do) learn about political rumors from the media, returning to the roots of gossip and hearsay might tell us something new about political misinformation. I show that even after accounting for previous explanations for political rumor acceptance, individuals who report relying on their peers for information about politics are more likely to believe political rumors than those who get most of their news from the media. I show this using data from the Cooperative Campaign Analysis Project, which is a nationally representative survey, as well as an original nationally representative survey. The causal identification in this chapter is weak, because I do not randomly assign participants to receive information from a peer or the news, as I do in Chapter 3. However, I use matching methods to account for selection into information source to approximate a causal relationship. This chapter also includes important descriptive information in an effort to better pinpoint the ways in which individuals recall first learning about political rumors.

Finally, Chapter 5 presents a conclusion, summarizing the core results and contributions of this dissertation. Most important, Chapter 5 outlines directions for future research, much of which is in progress.

Altogether, this project makes several important contributions to our understanding of political communication. By unpacking the way in which information changes on its journey through the two-step flow, I return to Hovland's (1948) call to consider the content of the messages being communicated between individuals, which has otherwise been largely overlooked. This sheds light on how we come to think about the relationship between the news and the public, which is especially important with the growth of social media as individuals have more access to social information than ever before. In addition to providing a more complete view of what the two-step flow looks like, I have been able to uncover previously hidden consequences of relying on our peers for information. In so doing, I demonstrate the strengths and limitations of using political conversations to foster an informed and engaged citizenry. As Americans grapple with the realities of a rapidly changing information environment, the growth of "fake news," the increased connection between social media and politics, and polarization, understanding the content and consequences of political conversations will be of the utmost importance.

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## 2 Modeling Political Information

### Transmission as a Game of Telephone

*Journal of Politics* 2018

**Abstract.** Many individuals learn about politics from other people instead of directly from the media. While this could be a good way to reduce information costs, highly controlled lab experiments reveal that the information exchanged can be biased. These important lab experiments are so controlled, however, that they ignore the complexities of language inherent in real-world information transmission. In an effort to improve our understanding of how political information changes as it propagates from the media to one person to another, I conduct a novel online experiment in which I track information diffusion through individuals in communication chains. I then use content analysis to examine how the information is actually changing, finding that the amount of political information communicated decreases as the number of people in the chain increases. Furthermore, the information is increasingly distorted as the length of the chain increases.

How does information change as it flows from the media to person to person? A long line of research suggests that many individuals turn to other people for political information instead of turning to the media (Katz 1957; Katz and Lazarsfeld 1955). The idea is that individuals



can form opinions and ultimately make rational voting decisions by relying on information from others who are more knowledgeable than they are and who share their preferences instead of spending time doing the research themselves (Downs 1957). While turning to others can reduce information costs, there is evidence from lab experiments that socially supplied political information can be biased in favor of the information sender's preferences (Ahn, Huckfeldt, and Ryan 2014). These highly controlled experiments have allowed us to explore the conditions under which individuals send biased information to others and how that biased information impacts learning and vote choice. However, most of these experiments involve individuals communicating numeric messages that represent preferences in a spatial model, which does not fully capture the complexities of language inherent in information transmission in the real world.

Research outside of political science has pushed beyond numeric information transmission, using content analysis of conversations to examine how information changes as it flows from one person to the next. Specifically, Moussaïd, Brighton, and Gaissmaier (2015) find that social information transmission about a controversial antibacterial agent results in less—and less accurate—information being communicated. It is important to examine whether this pattern exists in the communication of *political* information because of the impact that socially supplied political information can have on individuals' opinions and voting behavior. In addition, the strong influence of partisanship (Bullock et al. 2015; Campbell et al. 1960) and motivated reasoning (Taber and Lodge 2006) on how we interpret political information distinguishes the communication of political information from the public health information previously explored.

In this paper, I build on these two important bodies of work by bridging them together to provide a fuller understanding of how political information changes as it flows from the media, to person, to person. I expand on the important lab experimental work in the political context (Ahn et al. 2014) by introducing a novel experimental design that allows individuals to communicate more than numbers. By modeling information transmission as a game of telephone, we can track changes in content from one person to the next. This paper alone cannot answer all of the

important questions about the normative implications of social information transmission, but future studies can utilize variations from this core design to improve our substantive knowledge of information transmission.

## 2.1 Method

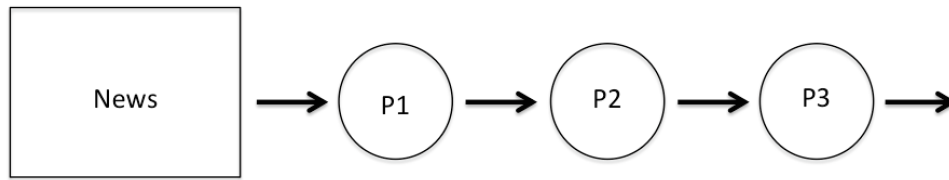
In a model based on the research design employed by Moussaïd et al. (2015), I examine how political information changes as it is passed from person to person using experimental diffusion chains. A diffusion chain consists of three unique participants that attempt to inform one another about the 2016 presidential candidates. As illustrated in Figure 2.1, the first participant (P1) read an article about the 2016 candidates<sup>1</sup> as if he or she was trying to learn about the candidates. After reading the article, the next screen prompted the participants to write a message to people with whom they have previously discussed politics, elections, or current events, telling them about the 2016 presidential candidates.<sup>2</sup> The next participant (P2) then read P1's message about the candidates and was asked to write a message under the same instructions. P2's message was then given to P3 to read, and P3 was asked to write a message under the same instructions. All participants were blind to any characteristics about the people from whom they received messages and to whom they sent messages. This provides for a true baseline test of information diffusion, net of strategic communication or discounted interpretation conditional on individual characteristics.

The data were collected in three stages on July 28, 2015 on Amazon's Mechanical Turk (MTurk). First, 150 individuals participated in Position 1, where they read a news article and

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<sup>1</sup>I selected a New York Times article that simply listed the presidential candidates for each party and sorted the candidates into "running," "probably not," and "not running" and includes three pieces of information about each candidate—a quote announcing candidacy, the candidate's "title" (i.e. senator from Florida, former secretary of state, neurosurgeon, etc.), and an update on campaign activity (i.e. hiring campaign manager X, leasing office space in Y, etc.). The article was updated the day before I collected the data and all three rounds of the experiment were conducted on the same day.

<sup>2</sup>The exact question wording for the survey is included in the online appendix.



**Figure 2.1:** Illustration of experimental diffusion chain.

then wrote their message about the candidates. Second, 150 new individuals participated in Position 2. Each P2 individual was randomly assigned to read a message written by a Republican or a Democrat in P1, but the participant was not explicitly informed of the message’s author’s partisanship.<sup>3</sup> P2 participants then wrote a message, just as P1 participants did. Third, 150 new individuals participating in Position 3, were randomly assigned to read a message written by a Republican or a Democrat in P2, and then wrote a message of their own. All three stages were conducted in three hours.

Although some raise concerns about the external validity of studies relying on samples from MTurk, there is evidence that certain types of experiments conducted on MTurk produce similar results to nationally representative samples (Krupnikov and Levine 2014; Mullinix et al. 2015). In particular, Krupnikov and Levine (2014) suggest that results from MTurk approximate representative samples when the studies do not require substantial “buy in” from the participants, which this study should satisfy. In addition, there are two notable reasons why unique features of MTurk provide a good platform for this study. First, the multitude of workers available allowed me to collect the data for each stage quickly, thereby reducing the likelihood that the information environment changed dramatically between stages. It is crucial

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<sup>3</sup>This analysis only examines partisans. Messages written by Independents were not passed on to the next stage. Independents who leaned toward one party were coded as partisans and were included in the analyses. As a result of dropping messages written by Independents, some messages were received by more than one participant at the next stage. The results presented reflect the *unique* messages or chains written and received by Republicans or Democrats. A preliminary analysis including Independents is presented in the appendix. Future work should take care to closely examine Independents as they could be the group most susceptible to bias introduced by partisans in socially transmitted messages.

to ensure that the information environment does not change between stages (i.e. candidates drop out of the race). Second, MTurk allowed me to keep all members of the diffusion chain anonymous. Characteristics about the information sender might alter the receiver's interpretation and subsequent relay of the information. By creating anonymous diffusion chains, I can examine information diffusion absent other influences to provide a *baseline* test of how information is distorted through transmission. Furthermore, we do receive information from anonymous individuals in the real world. Information overheard in public or read in online comments are anonymous forms of information diffusion.

### 2.1.1 Dependent Variable Measurement

This study includes two dependent variables: the amount of information communicated and the distortion of that information. I measure both using a coding scheme developed by Moussaïd et al. (2015). First, I measure the amount of information in each message by coding for "units of information." A unit is defined as a statement that conveys a single, identifiable piece of information. For example, Table 2.1 shows the messages written in one diffusion chain, with the units of information identified below. Two independent coders coded these messages blind to the chain position and in a randomized order. The coders were blind to the purpose, hypotheses, and design of the study, and converged on similar amounts of information (Krippendorff's  $\alpha=0.69$ ; correlation coefficient=.86; intraclass correlation coefficient=.85).<sup>4</sup>

Second, I measure information distortion by using the distortion coding scheme developed by Moussaïd et al. (2015). This coding scheme considers a unit of information to be distorted based on the following non-mutually exclusive characteristics: (1) A numerical value has changed or disappeared (i.e. the seed article or previous message said that 17 Republicans are running for president, but a message said "many Republicans are running for president" or "15 Republicans are

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<sup>4</sup>Detailed information about the coding scheme, including the training materials presented to the coders is available in the online appendix. The results presented in this paper represent the average scores from the two coders. All results hold when using data from each coder independently, as shown in the online appendix for reference.

running for president;” (2) Qualitative indication of volume, frequency, or probability has changed or has disappeared (i.e. Mitt Romney is definitely not running for president vs. Mitt Romney probably won’t run for president); (3) An element has moved from a specific to more general class of information (i.e. 17 Republicans are running for president vs. Many Republicans are running for president); (4) Previously inexistent element has been added (i.e. Many Republicans are running for President vs. Many Republicans are running for president and only a few Democrats); (5) Content is obviously wrong (i.e. Mitt Romney is running for president)

**Table 2.1:** Example Information Quantity Coding

| P1  | P2   | P3   |
|---|--|--|
| There is a handful of people running for the Democratic presidential nomination <sup>2</sup> . There is a much larger number of people running for the Republican nomination. It will be interesting how things turn out. Many will drop out for lack of funding and recognition, and a few more names on either side will be added to the mix. | There are a lot more Republican candidates than democrats- many of which will run out of funding or are unknown. The democrats are focusing on a few strong candidates while the republicans have many options.        | There are many more Republican candidates on the presidential race. Many of those running are unknowns or will drop out of the race. Democrats are focusing on a few candidates.   |
| Units of Information  |  |  |
| 1. There are a handful of people running for the Democratic presidential nomination<br>2. There is a much larger number of people running for the Republican nomination<br>3. Many will drop out for lack of funding<br>4. Many will drop out for lack of recognition<br>5. A few more names on either side will be added to the mix            | 1. There are a lot more Republican candidates than democrats<br>2. Many will run out of funding<br>3. Many are unknown<br>4. The democrats are focusing on a few strong candidates<br>5. Republicans have many options | 1. There are many more Republican candidates on the presidential race<br>2. Many are unknown<br>3. Many will drop out of the race<br>4. Democrats are focusing on a few candidates |

Two objective, independent coders coded these data. They were not blind to each message’s position in the chain in this case because they needed to be able to evaluate whether distortions occurred *relative* to the previous message. All statistical relationships and patterns hold for both coders, though the specific quantities, such as the mean number of distortions,

fluctuate slightly.<sup>5</sup> I created a total distortion score for each participant by summing the number of distortions in each of the five categories. I then calculated the cumulative distortion across the chain by summing the total distortion across positions for each chain. The cumulative distortion allows me to assess the extent to which information has changed from the news article to Position 3, thereby exploring additive effects of distortion.<sup>6</sup>

## 2.2 Results

### 2.2.1 The Amount of Information Transmitted Declines

I first test whether the amount of information communicated decreases as the length of the chain increases. As a simple, noisy test, I use a *t*-test to examine the difference between the average number of words in the messages at each position in the chain. The average number of words in a message was not statistically distinguishable between positions 1 (52.9 words) and 2 (46.8 words) or positions 2 and 3 (43.1 words). However, there were significantly more words in the messages in position 1 than position 3 ( $p < .05, CI = [0.80, 18.77]$ ). Notably, the original news article contained 1,659 words, which means that on average, only about 3 percent of the words in the original news article were communicated from position 1 to position 2.

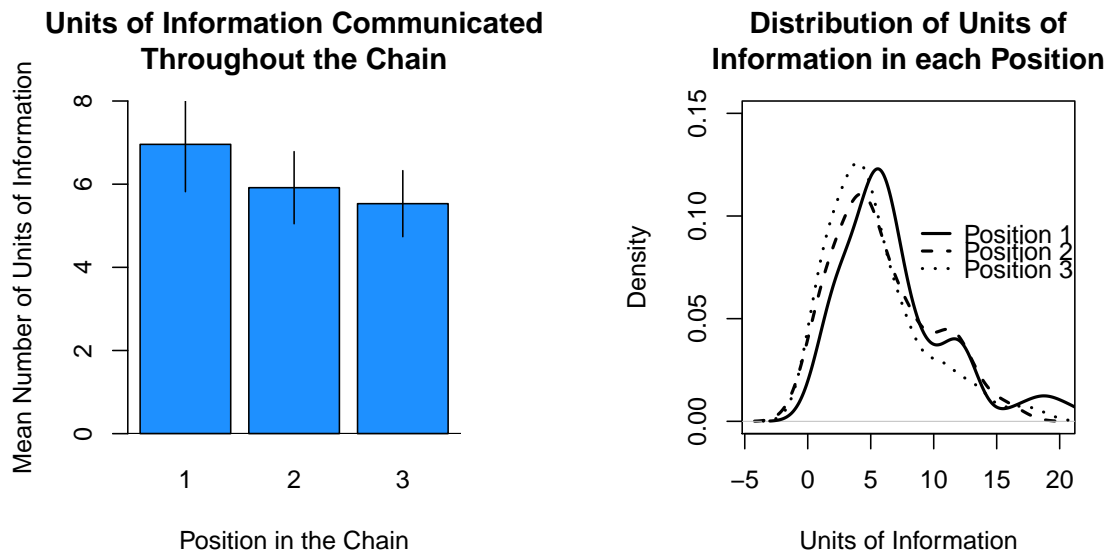
For a more precise test of this hypothesis, I examine the *units of information* in each position. As shown in Figure 2.2a there were fewer units of information in each position down the diffusion chain. Just as with the word count measure, a *t*-test indicates that there are significantly fewer units of information in the third position than the first position ( $p < .05, CI = [.02, 2.83]$ ),

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<sup>5</sup>The two coders did not have sufficiently high levels of inter-coder reliability. The results presented in the paper reflect the average of the two coders, but results from each coder independently are included in the appendix.

<sup>6</sup>Although this concern was not addressed in Moussaïd et al. (2015) under this coding scheme it is possible that accurate information gets coded as a distortion. For instance, if P1 introduces content that is obviously wrong (Category 5), but P2 *corrects* that information, P2's correction is still coded as a distortion because he or she has added a previously nonexistent element (Category 4). However, a very small percentage of all distortions in the study were Category 5 (obviously inaccurate content), and this content was not corrected by subsequent participants in the chain.

so by the end of the three-person chain, there is significantly less information being transmitted. Importantly, the original article contained 228 units of information, which means that the people at position 1 only passed on about 3% of the information from the article to the next person. Figure 2.2b shows that the distribution of units of information is roughly the same for each position in the chain, aside from subtle shifts to the left for P2 and P3 relative to P1.<sup>7</sup>



(a) Mean Units of Information by Position

(b) Distribution of Units of Information by Position

**Figure 2.2:** Figure (a) shows the mean number of units of information communicated at each position in the diffusion chain. Lines represent 95% CI. Figure (b) shows the distribution of the units of information for each position.

## 2.2.2 The Quality and Precision of the Information Declines

Second, I examine whether the fidelity of information decreases as it propagates through the chain. Ultimately, the additive effect of distortion is more appropriate to evaluate than the number of distortions made at each position because P3 is not only exposed to P2’s distortions,

<sup>7</sup>The decline in information could be an artifact of the instructions. Participants were not incentivized to write thoroughly, inform, or persuade the person to whom they wrote. Future studies utilizing a similar design could vary the instructions and incentives presented to participants.

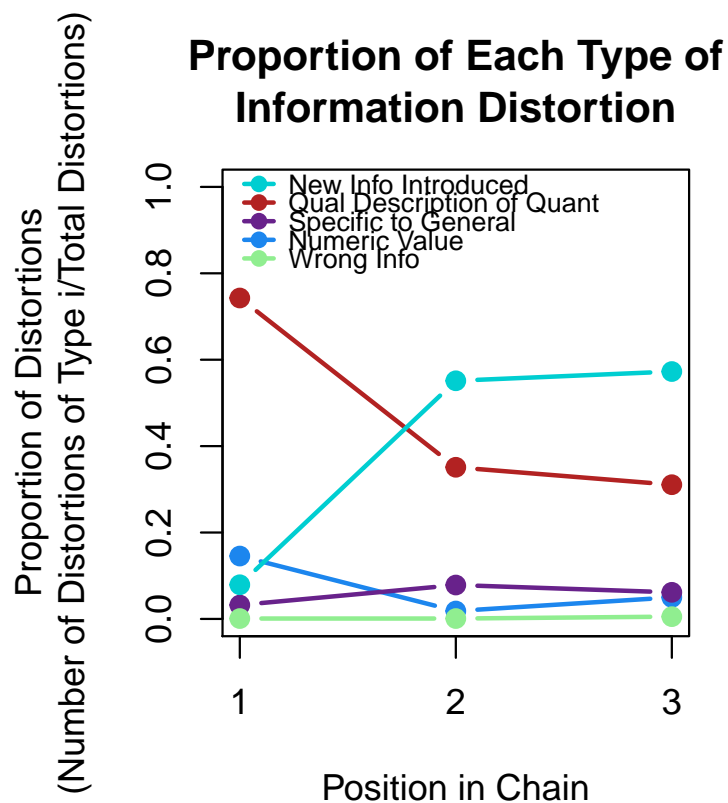
but P2's distortions of the information already distorted by P1. I therefore, discuss the *cumulative* distortion of the information across each chain. On average, a participant at P1 made about 65.5 distortions, a participant at P2 made about 9 distortions, and a participant at P3 made about 8.2 distortions. Looking at the cumulative distortion indicates that a hypothetical person at P4, getting information from the person at P3, is exposed to information with about 82.6 distortions, which is 26 percent more distorted than the information the person at P2 receives from P1.

Looking into the five types of distortion classified by Moussaïd et al. (2015), Figure 2.3 shows the mean proportion of the number of distortions of each type relative to the total number of distortions for each position in the chain. This suggests that individuals at P2 and P3 are more likely to introduce new information than individuals at P1. Upon reevaluating the messages, it is clear that individuals at P1 have omitted so many details in consolidating the information from the article that there is very little specific information left for individuals at P2 and P3 to generalize, few numeric values to change, and few quantities to describe qualitatively.<sup>8</sup> It is important to note the remarkably low levels of wrong information being introduced because it suggests that the changes in information through a diffusion chain might be more benign than theory would suggest. Individuals at the end of a chain are certainly not exposed to the same, as much, or as precise information as those at the start of a chain, but they do not appear to be any more likely to be exposed to blatantly wrong information.

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<sup>8</sup>That changes in qualitative descriptions of quantities and numeric values were the most common distortions in position 1 could suggest that individuals have a difficult time interpreting numbers. This should be evenly distributed between the positions, but it is worth considering the possible role of numeracy in information transmission.





**Figure 2.3:** Proportion of each type of distortion across the chain positions. Proportions were calculated by  $\frac{d_i}{D}$ , where  $d_i$  denotes the number of distortions made of each type  $i \in \{\text{New information introduced, qualitative description of quantity, specific information generalized, numeric value has changed or disappeared, wrong information introduced}\}$ , and  $D$  denotes the total number of distortions.

## 2.3 Discussion

This study introduces a new experimental paradigm to political science research on information transmission. The substantive results suggest that the *amount* and *quality* of political information declines as it propagates through more people. This suggests that people farther removed from the initial source of information—farther down an information diffusion chain—will not only receive less information, but that information will also be distorted, particularly from the introduction of information external to the initial source and a dramatic loss of specificity.

Together, these results enhance our understanding of political information transmission by demonstrating the ways in which information changes as it travels through a diffusion chain. The biggest findings, that information shrinks in quantity and quality as it propagates, complement the current understanding of political information transmission from lab experiments and replicate the results from apolitical information transmission in public health. These results indicate that the two-step flow theory of communication might have normatively negative consequences for the development of an informed citizenry. As distortions in information increase with each step removed from the initial news source, most individuals are receiving distorted information. Those at P1, exhibited very different forms of distortion than those at P2 and P3. Those at P1 were more likely to alter a qualitative description of a quantity and numeric values, both of which are likely a function of consolidating a large amount of information into main points to pass on to another person. In contrast, those at P2 and P3 were more likely to introduce new information, which could be a result of them trying to fill in the blanks with their own ideas from other sources. This study does not speak to the empirical validity of the two-step flow theory, but it does present some of its consequences, if it is indeed reflective of the real world.

Although the results of this analysis are compelling, this study is not without its limitations that present opportunities for future research utilizing this design. First, the study involved information about the 2016 presidential candidates, which was a relatively salient topic in July 2015. The salience of the topic poses a potential problem for this analysis: because most of the participants had likely heard something about the candidates, it is possible that they wrote their messages based solely on prior knowledge instead of what they read from the previous person. However, given that individuals rarely discuss political topics that are not salient, it is likely that they have at least *some* information prior to hearing from another person. Future research should build on this by examining how individuals re-aggregate information from multiple sources. Future work could also probe how the topic, affective content, or partisan bias of the news articles influence the transmission process.

Second, a related limitation is that individuals self-select into information diffusion chains in the real world. Individuals might self-select into getting information from only copartisans in the real world, yet in this study, participants were blind to all characteristics, importantly including partisanship, of the information senders and receivers. It is reasonable to expect that individuals interpret information differently from a known copartisan than a known non-copartisan. Individuals are also likely to tailor the information they share with others conditional on anticipated agreement or disagreement. The experimental design in this study does not allow me to assess these interesting dynamics. Instead, this study focuses on capturing a *baseline* for political information transmission, absent these potentially influential contextual factors. In addition, individuals in the real world choose their position in the chain based on their information-seeking habits. In this study, the person in position 1 could have been the least informed and least politically interested person in the diffusion chain, which is unlikely to occur in reality. While chain position is not *randomly* assigned in this study, as those who opted into each round of the study could be substantively different, Table 1 in the appendix suggests that the participants in each stage were highly comparable.

In addition to addressing these limitations in future research, it will be important to push beyond characterizing political information distortion to explore its implications and prescribe solutions. Perhaps most important, future work should consider whether individuals receiving more distorted information are still able to make rational political decisions. This analysis will help determine the extent to which these characteristics of political information transmission are good or bad for a well-functioning democracy.

Chapter 2, in part, is a reprint of the pre-publication version of the material as it appears in the *Journal of Politics* 2018. Carlson, Taylor N. 2018. "Modeling Political Information Transmission as a Game of Telephone." *Journal of Politics* 80(1): 348-352. The dissertation author was the primary investigator and author of this paper.

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# 3 Through the Grapevine: Informational Consequences of Interpersonal Political Communication

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**Abstract.** Much of the U.S. public acquires political information socially. However, the consequences of acquiring information from others instead of the media are under-explored. I conduct a "telephone-game" experiment to examine how information changes as it flows from official reports to news outlets to other people, finding that social information is empirically different from news articles. In a second experiment on a nationally representative sample, I randomly assign participants to read a news article or a social message about that article generated in Study 1. Participants exposed to social information learned significantly less than participants who were exposed to the news article. However, individuals exposed to information from someone who is like-minded and knowledgeable learned the same objective facts as those who received information from the media. Although participants learned the same factual information from these ideal informants as they did from the media, they had different subjective evaluations.

Today, technological innovations enable individuals to learn about politics from countless sources. With the growth of online news and the spread of information on social media, individuals arguably have access to more information now than ever before. Yet, Americans still seem relatively unwilling to access the news. Only 4 percent of Internet users read at least ten news stories and two opinion pieces over three months (Flaxman, Goel, and Rao 2016). Where, then, are Americans getting their news? Even with the proliferation of news options, 41.7 percent of Americans report getting information from talking with friends and colleagues daily.<sup>1</sup> Some of these social information exchanges might be occurring online, given that two-thirds of American adults get news from social media (Shearer & Gottfried 2017). This tendency to rely on others for information characterizes the “two-step flow” of information, which suggests that information flows from the media, to interested individuals known as opinion leaders, to others (Katz 1957; Katz and Lazarsfeld 1955). The idea is that because many Americans are not particularly interested in or knowledgeable about politics (Delli Carpini and Keeter 1996), they find it easier to ask others for information about politics instead of spending time looking it up on their own. Indeed, classic theories in political science suggest that relying on others who are more knowledgeable about politics and have similar preferences can be a rational information shortcut (Downs 1957; Lupia and McCubbins 1998). But, just as information can vary from one media outlet to the next, socially communicated information might differ drastically from information communicated by the media.

Recent efforts to understand social information transmission present a relatively grim view of the self-educating potential of the American public. Using a series of controlled lab experiments, Ahn, Huckfeldt, and Ryan (2014) show that when incentivized to maximize the number of votes their preferred candidate receives, individuals often send biased information in favor of their preferences to other participants, hindering correct voting decisions. Carlson (2018)

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<sup>1</sup>World Values Survey 2014. Only 5.4 percent of Americans report never using conversations with friends or colleagues for political information, which is similar to TV News, where only 5.6 percent report never using TV news for political information.

also demonstrates that a substantial amount of information is lost and distorted in the social transmission stage of the two-step flow, showing that those who get information from others are exposed to less — and less precise — information than those who get information directly from a media source. Between filtering out which information is worth passing on to another person, explaining that information through the lens of one’s own experiences, preferences, and (mis)understanding, and introducing new information that may or may not be accurate, socially generated political information is likely to change as it flows from the media, to opinion leaders, to others. However, little research to date has characterized how socially transmitted information differs from information communicated by the media. More importantly, we know even less about the *consequences* of socially transmitted information for political behavior, relative to information communicated by the media.

How exactly is socially supplied information different from information supplied by the media? What are the *consequences* of relying on socially supplied information instead of information from the media? I first quantify the ways in which socially generated information differs from information generated by the news media. I use a telephone game experiment (Carlson 2018; Aarøe and Petersen 2018) to examine how information about U.S. economic performance changes as it flows from the Bureau of Economic Analysis to the media to other people. The results demonstrate that socially supplied messages contain less information that is less similar to the original report than news articles. Moreover, individuals transmitted information that was biased in favor of their partisan preferences. Thus, building on Druckman, Levendusky, and McLain (2018), I show that even information from initially objective, as opposed to partisan, news sources can become biased through social transmission, even when individuals are not incentivized to misrepresent the information, as in some of the Ahn, Huckfeldt, and Ryan (2014) experiments. This is particularly concerning because it suggests that voters could be exposed to even more distorted information than we previously realized.

Next, I examine the consequences of exposure to socially generated political information

with an experiment conducted on a nationally representative sample of U.S. adults. Participants were randomly assigned to receive information about U.S. economic performance written by a news outlet or generated by another person in the telephone game experiment. I examine learning and attitude change about the state of the economy and the president. I find that participants who received information from another person learned significantly less than those who received information from the media. However, those who received information from an “ideal informant,” someone who was relatively more knowledgeable and shared their partisanship, learned the same amount as those who received information from the media, even though the social message was substantially shorter than the news article. Thus, consistent with previous research (e.g. Lupia and McCubbins 1998), turning to others for information might not be problematic as long as individuals receive information from these ideal informants.

However, while individuals learned the same amount of objective information from ideal informants and the media, they used that information differently to form subjective evaluations. Those who learned from the media thought the economy was getting worse, whereas those who learned from an ideal informant did not update their beliefs about the economy at all. Socially generated information affected participants’ subjective evaluations of the president, even if it did not affect evaluations of the economy. Those who received information from a Republican or an Independent held significantly more positive evaluations of President Trump than those who received information from a Democrat or the media. That individuals updated their economic and presidential evaluations in response to new information differently conditional on the information source suggests that models of Bayesian reasoning (Coppock 2016; Kim 2017) should carefully consider the impact of the information source.

Together, these results suggest that ideal informants can help facilitate how much individuals know about the news in the absence of information from the media, but this comes at the cost of exposure to biased information that can lead individuals to update their preferences. This illuminates some of the limitations of the classic theories of social informational shortcuts



that focused on the dyadic informant-recipient dynamics (e.g. Lupia & McCubbins 1998; Ahn, Huckfeldt, and Ryan (2014)), abstracting away from the content of the message itself. By evaluating characteristics of the informant, recipient, and message, this paper more fully analyzes the properties of communication (e.g. Hovland 1948) that impact political learning and attitudes.

### **3.1 Why Socially Supplied Information Looks Different and Why It Matters**

Obtaining information from other people might allow individuals to efficiently learn about politics, but the content of socially generated information is likely to be different from information generated by the media. Information from the media is largely communicated by journalists who adhere to professional norms that incentivize producing accurate information and fact-checking (Graves, Nyhan, and Reifler 2016). While partisan media bias may exist (Arceneaux and Johnson 2013; Levendusky 2013; Budak, Goel, and Rao 2016), professional news outlets must still subscribe to some degree of journalistic integrity that motivates accurate reporting. In contrast, information communicated by others is largely unregulated. This means that individuals can transmit political information to others that is not only biased, but perhaps wildly inaccurate, with little to stop — or correct — them, beyond social or reputational costs (Lupia and McCubbins 1998). On the other hand, peers may be more effective at communicating important political information than elites.

Recent research suggests that information can indeed become distorted through interpersonal communication. In particular, individuals at the end of an information diffusion chain are typically exposed to less information that is less accurate or precise than information at the start of a chain (Moussaïd, Brighton, and Gaissmaier 2015; Carlson 2018). Furthermore, partisan media bias can become *amplified* through interpersonal communication (Druckman et al. 2018). Individuals who receive information from others are thus likely to be exposed to a different set

of information that may or may not be accurate. If the individuals who are least interested in or knowledgeable about politics are also those most likely to look to others for information, they might be unlikely to question the validity of the information communicated by their peers.

There is good reason to expect socially communicated information to be *different* from information communicated by the media, but there is less evidence about why these differences matter. In this paper I explore two interrelated forms of political behavior that could be affected by whether individuals are exposed to information communicated by the media or another person. Specifically, I explore how these different information sets affect objective learning and subjective evaluations.

### **3.1.1 Consequence 1: Objective Learning**

A long line of research has demonstrated that individuals can learn about current events and politics from the news media (Zaller 1992; Bartels 1993; Popkin 1994; Weaver 1996; Baum 2002; Wei and Lo 2008; Hill and Roberts, n.d.). Even though the mechanism through which individuals learn from the media (e.g. cognitive mediation (Eveland 2001), attention (Drew and Weaver 1990; Zaller 1992; Popkin 1994)) is debatable, most scholars agree that exposure to the media can inform the electorate. Similarly, scholars have long theorized that we can learn a lot about politics from others in our social networks (Berelson, Lazarsfeld, and McPhee 1954; Katz and Lazarsfeld 1955; Katz 1957; Huckfeldt et al. 1995; Ellison and Fudenberg 1995; Ahn, Huckfeldt, and Ryan 2014). While there is evidence to suggest that it is at least possible for individuals to learn from either the media or other people, these studies do not generally compare whether one offers a learning advantage over the other.

Socially transmitted information is likely to be less precise and contain fewer units of information than information communicated by the media itself. This variation in information quantity and quality might impact how much individuals learn about a given topic. On the one hand, we might expect individuals to learn more when they are presented with a greater quantity

of higher quality information. If this is the case, we would expect individuals to learn more from media articles than they would learn from socially transmitted summaries of those articles, given the previous research illustrating the differences between these two information sources.

On the other hand, socially transmitted information might facilitate learning by being more accessible than the longer, more detailed information communicated by news articles. Turning to others who are more knowledgeable and share our preferences should, in theory, be a useful information shortcut, allowing us to learn a sufficient amount of information without spending time and resources sifting through information communicated by the media (Downs 1957; Lupia and McCubbins 1998). It is possible that these knowledgeable political informants are able to package information in a way that is easier to comprehend than complex news articles. Thus, it is unclear whether individuals will learn and recall more information communicated by the media or other people.

Digging deeper into how much individuals learn from socially communicated information compared to information from the media, individuals should learn differently depending upon the characteristics of the informant. Of particular importance is the perceived level of agreement between the information sender and receiver, which will most readily be cued by partisanship. From a cognitive processing perspective, research on motivated reasoning suggests that individuals are slower to process information that is inconsistent with their preferences (Lodge and Taber 2013; Taber and Lodge 2006). But, even from a Bayesian learning standpoint, Hill (2017) shows that individuals have a harder time learning information that is inconsistent with their prior beliefs. Both perspectives should lead us to expect individuals to learn more from like-minded copartisans than disagreeable outpartisans.

### **3.1.2 Consequence 2: Subjective Evaluations**

Related to how much individuals can learn from others relative to the media, I also explore how each information source affects their subjective attitudes. The relationship between facts

and attitudes is of much scholarly interest. Some researchers question the extent to which facts impact our subjective beliefs at all (Kuklinski et al. 2000). Other researchers find that individuals often do not update their subjective beliefs in a direction that is consistent with the facts, even if they believe those facts to be true (e.g. Gaines et al. 2007; Nyhan et al. n.d.). Indeed, there are often partisan patterns in how individuals interpret the facts to form their opinions. While factual beliefs theoretically should impact subjective evaluations, the literature to date remains unclear. As such, it is worth considering the extent to which facts presented by other people can impact political attitudes in a way that differs from facts presented by the news media.

Most evidence suggests that media exposure can increase political knowledge and awareness, but can it influence subjective opinions? Political scientists were initially skeptical that the media could influence opinions (Berelson, Lazarsfeld, and McPhee 1954; Campbell et al. 1960), but most research since then argues that the media can indeed impact public opinion (Iyengar and Kinder 1987; Zaller 1992; Bartels 1993; Popkin 1994). Whether the media influences public opinion through priming, making some issues more salient, framing, or some other mechanism, it seems clear that public attitudes about policy and candidates can be influenced by the media.

Social influence has also been shown to affect subjective evaluations. Research on political discussion networks suggests that individuals can persuade members of their social networks (Huckfeldt and Sprague 1995; Huckfeldt, Johnson, and Sprague 2004). Directly examining the two-step flow, Druckman et al. (2018) find that the effects of partisan media on political attitudes are amplified in political discussions, such that individuals who were not exposed to partisan media, but discussed politics with people who were exposed to partisan media showed dramatic changes in their political attitudes in the direction of the media's bias. Thus, social political communication can have a dramatic impact on attitudes, above and beyond the independent influence of the partisan media.

Beyond active persuasion and the downstream effects of *partisan* media, I argue that social information transmission could still have a meaningful impact on opinion. A relatively small

segment of the American population consumes partisan media (Levendusky 2013; Arceneaux and Johnson 2013), which means that it is also important to consider how socially transmitted information stemming initially from non-partisan media—that is, media that has not been shown to be biased toward Republicans or Democrats—impacts public opinion. Non-partisan, objective information might quickly become politicized through social communication. Even if individuals are not actively trying to persuade others when they discuss politics, their political biases might still be communicated—and possibly amplified—as they attempt to inform others about politics.

The extent to which information is congruent with one's prior beliefs influences whether and how one is likely to update his or her beliefs (Kunda 1990; Lodge and Taber 2000; Redlawsk 2002; C. Erisen, Redlawsk, and Erisen 2017; Hill 2017). The possibility that social informants inject their political biases into the information they transmit to others, paired with the general tendency to reject incongruent information suggests that social information transmission might lead individuals to sub-optimally update their beliefs. Individuals exposed to information from an out-partisan should be more likely to be exposed to incongruent information, which they should be less likely to use to update their beliefs. Those exposed to information from a copartisan should be more likely to be exposed to congruent information, which they are likely to accept. Because the congruent information is similar to their prior beliefs, there is little room to update. Both of these cases can be problematic, especially if the incongruent information is accurate and the congruent information is not. Alternatively, individuals might simply employ Bayesian reasoning, updating their beliefs in the direction of the evidence regardless of whether it is consistent with their priors (Coppock 2016). Whether individuals are motivated reasoners or Bayesian updaters has not yet been examined within the context of comparing social information to information from the media.

Ultimately, I expect the content of socially supplied information compared to information from the media to impact subjective political evaluations due to the possibility of bias being introduced in social messages. The media is motivated to adhere to professional norms that

require communicating balanced, unbiased information, whereas individuals could be motivated to persuade others. In the real world, those who choose to rely on other people for information about politics might be especially susceptible to bias because they are less likely to be interested in or knowledgeable about politics. As a result, they might be more easily swayed based on the information with which they are presented.

## **3.2 Method**

I conduct two studies to examine how social information differs from that communicated by the media and how information source affects learning and attitudes. First, I analyze the text from observational and experimental data to examine how information changes as it flows from an official report to media outlets to the public. I then conduct an experiment in which participants are randomly assigned to receive information generated by a news source or another person, using messages generated in the first study.

In both studies, I focus on news articles about economic performance in the US. This topic is ideally suited for this analysis for four reasons. First, any study about information acquisition and learning needs to protect against the information environment changing during data collection. The Bureau of Economic Analysis (BEA) releases quarterly reports on Gross Domestic Product (GDP) in the United States on a fixed schedule. While the economy certainly can change during a quarter, these economic changes are not typically released more regularly than on a quarterly basis. This means that using a news story about the most recent GDP figures will reflect a relatively stable information environment for a three-month time-frame. This gives me more confidence that the information environment will stay constant during the data collection period.

Second, most news outlets cover economic reports. This means that I will have more data with which to analyze changes in information from the official report to news outlets. The abundance of news articles also suggests that these economic reports are sufficiently newsworthy

to be relevant to American voters. This is related to a third advantage of using news stories about economic performance: economic performance is strongly related to vote choice. When the economy is doing well, individuals tend to reward incumbents at the polls. As a result, exploring the extent to which information source can impact one's perception of economic performance can have important consequences for how one votes and makes economic decisions.

Fourth, information transmitted about economic performance based on the BEA's reports can be validated to an objective measure. To the extent that we believe that the data analyses conducted by the BEA are accurate, they should serve as an objective truth of how the economy is performing. We can then examine how information in news articles about the BEA's report deviates from the objective truth contained in the actual report. One important step further, we can examine how socially transmitted messages deviate from the truth.

### **3.3 Study 1: How does information change? Research Design**

To examine how information changes, I focus on the BEA's report reflecting the revised GDP estimate of the first quarter of 2017. This report, released on June 29, 2017, reflects the final GDP estimates of President Trump's first quarter in office, which leaves room for the report to be especially politicized. The BEA report represents the objective benchmark to which I compare information from the media and other people.

#### **3.3.1 Data Collection**

*Media Transmission.* I began by collecting news articles published on June 29, 2017 that were about the GDP estimates. I first searched the Lexis Nexis University database for news articles mentioning GDP or gross domestic product anywhere in the article. I restricted the data collection to US-based news outlets. This search yielded 316 news articles, many of which were newswires that get updated several times each day. After removing duplicates from the hourly

newswire updates and articles that did not reference the BEA's report<sup>2</sup> I was left with 32 unique articles. I supplemented this Lexis Nexis Uni search with organic searches using a method similar to that used by Hill and Roberts (n.d.). Specifically, I searched Google News and individual news outlet websites, using the same keywords and date restrictions as the Lexis Nexis Uni search. Altogether, I ended up with 61 news articles published on June 29, 2017 about the BEA's GDP report.

***Social Transmission.*** To examine how information changes as individuals transmit what they learned from a news article to another person, I conducted a telephone game experiment (Carlson 2018; Aarøe & Petersen 2018). I selected one of the 61 news articles for participants to read. The full article is available in the appendix. I chose an article published by Reuters because Budak, Goel, and Rao (2016) show that Reuters is an objectively neutral news source. In an ideal case, I would examine social transmission of a variety of news articles, including those that contain considerable bias. However, as a first step into analyzing these effects, it was more important to examine deviations from a neutral source before adding the complexity of media bias. Selecting the Reuters article, thus allows me to evaluate the extent to which individuals introduce bias to initially objective information sources. Moreover, in an experiment with a limited sample size, it was important to have a common initial information source from which participants might deviate.

I recruited 492 participants on Amazon's Mechanical Turk for this experiment. While some raise concerns about the generalizability of data collected on Mechanical Turk, others have suggested that for Mechanical Turk samples are often more representative than other convenience samples, such as college students (Mullinix et al. 2015; Berinsky, Huber, and Lenz 2012). In particular, experiments that do not require substantial "buy in" from participants can yield suitable samples (Krupnikov and Levine 2014). Although this sample may not be nationally

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<sup>2</sup>Some articles were about GDP in other countries such as Germany and Ghana, but made no reference to US economic performance in the first quarter of 2017. Other articles discussed the strength of the dollar or trade relations with respect to GDP, but did not discuss the new GDP figures from the BEA.



representative, there are features of Mechanical Turk that are especially suited to telephone game experiments. For example, it is important to ensure that the information environment does not change dramatically over the course of data collection and Mechanical Turk allows researchers to collect data within hours. Furthermore, Mechanical Turk workers are typically more interested in and knowledgeable about politics than the average American. While this means that this sample is less representative of the American public at large, it might be more representative of opinion leaders who transmit information to others in the real world.

After gaining informed consent electronically, participants were asked to read the Reuters news article. The specific prompt was “Please spend a few minutes reading the following article about U.S. economic performance in the first quarter of 2017. You can spend as much time reading it as you like, but we ask that you read it as if you were trying to learn about the economy or read the news in your daily life.” The experimental manipulation was introduced on the next screen. After reading the article, participants were asked to write a message telling another person about the article that they just read. The intended recipient of the message was manipulated, such that participants were randomly assigned to write their message to a Republican, a Democrat, or an Independent. Specifically, participants were given the following instructions: “Imagine that you were discussing politics and current events with a [**Republican / Democrat / Independent**]. Please write what you would tell a [**Republican / Democrat / Independent**] about the article you just read. Please do not include any names or identifying information about you or the people you know.”<sup>3</sup> Finally, after writing their messages, participants were asked a few additional survey questions including some demographic information, their perceptions of the article, how much information they recalled from the article, and their subjective evaluations of the economy.

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<sup>3</sup>The last sentence of the instructions about omitting identifying information was included for IRB purposes to protect the anonymity of the participants.

### 3.3.2 Measuring Information Changes

I demonstrate how information differs between official reports, news articles, and socially generated messages using a variety of strategies. I first present a descriptive analysis of how much information is contained in each stage of this diffusion chain. As a rough proxy for the amount of information, I use the total word count of the report, news article, or social message. Word count correlates very highly with a more structured coding of “units of information” (Moussaïd, Brighton, and Gaissmaier 2015; C. Erisen, Redlawsk, and Erisen 2017).<sup>4</sup> I expect the amount of information communicated to decline at each stage, such that social messages have the least information and the original report has the most information.

Next, as a proof of concept that the the content of the informational messages differs at each stage, I analyze how similar the documents are to each other using cosine similarity. Cosine similarity is a commonly used metric to analyze how similar the content of two documents are (Conover et al. 2011; Huang 2008). Cosine similarity comes from the angle between two vectors of word counts, one from each of the two documents to be compared. Bounded between 0 and 1, lower scores mean that there are fewer words in common between two documents, meaning that they are less similar. An important feature of cosine similarity is that it is independent of document length. This is especially important for my analysis because the socially transmitted messages are substantially shorter than the news article and original report. Cosine similarity relies on the bag of words assumption, which means that the order of the words does not matter. Similarity metrics allow us to roughly quantify how much content is shared between two documents. If information is changing as it flows from one source to the next, we should expect fewer words to be the same between documents at each stage. These metrics thus allow us to examine the extent to which information is indeed changing as it diffuses. As shown in the appendix, the results hold

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<sup>4</sup>Two independent coders coded each response for the number of units of information contained in each message, following the coding scheme developed by Moussaïd et al. 2015. The coders obtained reasonable levels of inter-coder reliability (Krippendorff’s Alpha=.78; correlation=.91). Please see the appendix for an analysis using the hand-coded data, which shows the same general patterns as word count.

using Jaccard Similarity and cosine similarity with doc2vec. The results also remain substantively unchanged when the messages have been manually corrected for spelling errors and typos.

Finally, to examine the bias individuals might introduce as they transmit information to others, I analyze the sentiment of the social messages. To get a better sense for the tone within this context, two independent coders counted the number of units of information that were positive and negative about the economy. I then calculate the percentage of positive and negative units of information relative to the total number of units of information in each social message. I supplement this hand-coded analysis with a dictionary-based sentiment analysis in the appendix. My general expectation is that individuals inject their biases into information they transmit to others. As a consequence, we should be able to detect partisan bias in how individuals discuss the state of the economy. Specifically, I expect that Republicans will transmit more positive information about the economy than will Democrats.

## **3.4 Study 1 Results**

### **3.4.1 How much information is communicated?**

I first examine how much information is communicated in each informational message. Considering the number of words contained in a document to be a loose proxy for the amount of information, there is a dramatic loss of information at each stage of this diffusion chain. News articles (mean=583 words) contained less than half the amount of information as the official report (1,681 words). The social messages contained only about 2.2 percent of the information contained in the official report, with an average length of 37 words. Thus there is strong support for the expectation that socially generated messages are shorter than news articles. Looking specifically at the socially transmitted messages, there were no statistically significant differences in the length of the messages written to Republicans, Democrats, or Independents.

### 3.4.2 Does the content change?

Beyond how much information is communicated, there might be variation in how similar the informational messages are to each other. Table 3.1 presents example socially transmitted messages to provide a sense for the content of the socially supplied information in this experiment, as well as to contextualize the similarity scores. Specifically, Table 3.1 shows the messages with the lowest similarity score (.10), the median similarity score (.47), and the highest similarity score (.77). The messages shown in Table 3.1 provide some face validity to the similarity measure. Messages with low scores focused more on partisanship and President Trump, offering little information about economic performance. In contrast, the messages with high similarity scores discussed economic growth, often using specific numbers.

**Table 3.1:** Example Socially Transmitted Messages, Similarity, and Sentiment Scores

|                     |  | Similarity   |
|---------------------|--|--|
| Least Similar (.10) |  | While I ***** hate Donald Trump it seems that he is actually doing some good. He is still a moron but he appears to be getting numbers up so that's something  |
| Median (.47)        |  | The Trump administration has still not been able to get going their plan to raise the U.S. growth by 3% and it's already been 6 months.  |
| Most Similar (.77)  |  | You know, the most recent reporting on the U.S. economy showed a bit of an improvement owing to some unexpectedly moderate rise in consumer spending & a bigger jump in exports. This also included a nice showing on Gross domestic product according to the Commerce Department final assessment on prior first quarter estimates, as Thursday's reporting says. A sustained average of 3 percent growth has not been seen since the 1990s. Since 2000, the U.S. economy has grown at an average 2 percent rate. The Trump administration's stated that it is still expecting a target of swiftly boosting U.S. growth to 3 percent. We shall see how things develop going foreword [sic], given President Donald Trump's economic program of tax cuts, regulatory rollbacks, and infrastructure spending. |
|                     |  | Sentiment About the Economy  |
| Most Negative (4)   |  | The economy under the new Republican presidency is slowing crumbling. Nothing is being done about our currently financial situation because no one can agree on any time of final plan for the United States. I fear what will happen if rates continue to fall and growth continues to slow down.   |
| Neutral (0)         |  | The first quarter growth in the US is higher than expected, but still very slow. Newly instituted programs have yet to show any real changes in our economic growth.   |
| Most Positive (5.5) |  | It looks as though the economy is doing fairly well. Consumer spending is up and this is driving the upswing in other things. Jobs are on the rise by a small rise. Businesses are seeing tax relief which allows them to hire.  |

Figure 3.1 shows the distributions of similarity scores between the different information

sets in Study 1. The solid line shows the distribution of similarity scores that indicate how similar each news article was to the official BEA report. The Reuters article used in the experimental portion of Study 1 had a similarity score of about 0.78. The distribution of similarity scores indicates that overall, the news articles were fairly similar to the official report, with the average similarity score being about 0.7.

The dashed line on Figure 3.1 shows the distribution of similarity scores comparing the socially generated messages to the Reuters news article. The average similarity score between the news articles and the official report was about 0.7, whereas the average similarity score between the socially generated messages and the Reuters article was about 0.43. The similarity scores between the socially generated messages and the Reuters article were significantly lower than the similarity scores between the news articles and the BEA report ( $p < .001$ ). This suggests that the information communicated in a news article deviates less from the objective original source than socially generated messages deviate from the news articles.<sup>5</sup>

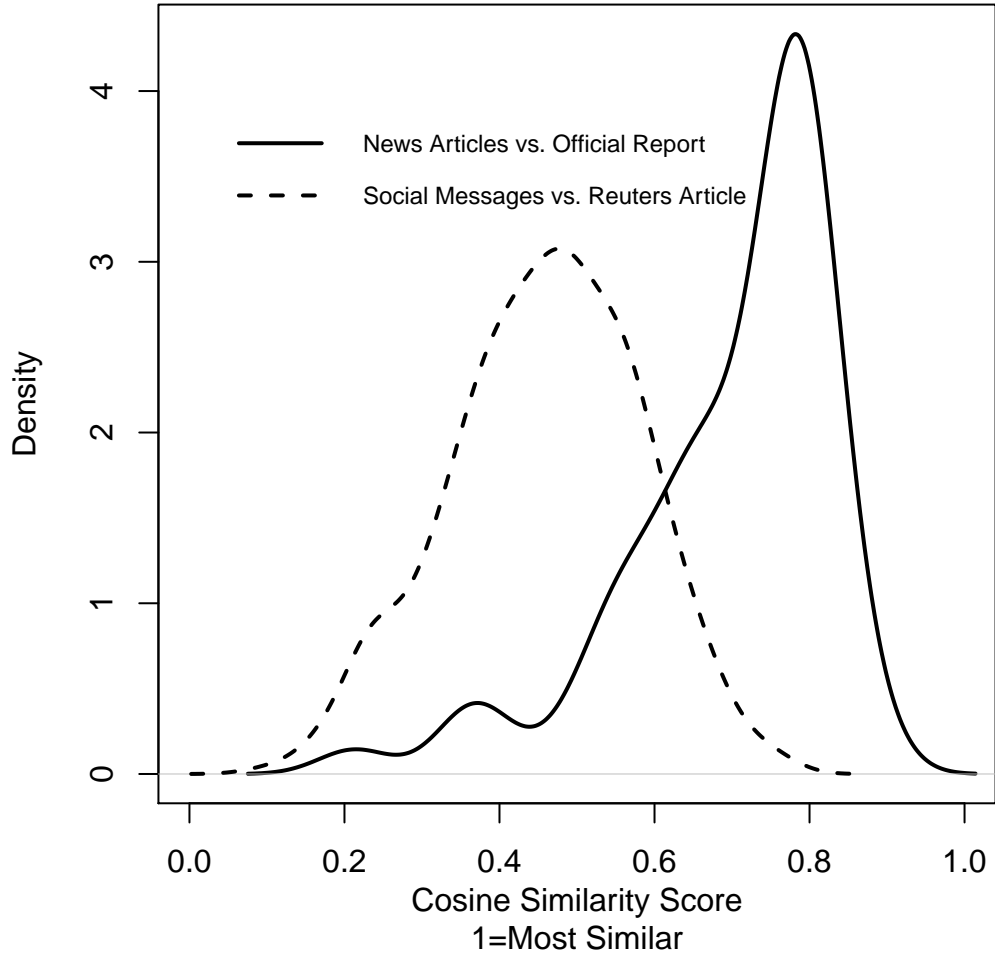
### 3.4.3 Does the tone change?

Given that the socially generated information differs from the information communicated by the media, the next important question is how. Table 3.1 shows examples of the social messages that were most negative, neutral, and most positive about the economy, based on the hand-coded data. I calculated the percentage of positive units of information about the economy in a message, as well as the percentage of negative units of information about the economy in a message. The results suggest that, on average, 24.3% of the information contained in a social message was positive about the economy, whereas 14.3% of the information in a social message was negative about the economy. The social messages contained significantly less negative information than

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<sup>5</sup>To address the concern that these results are driven by variation in document length, I calculated similarity scores comparing the news article to computer-generated summaries of that news article. The computer-generated summaries were significantly more similar to the news article than were the human-generated social summaries created in Study 1. This means that the variation in content between news articles and social summaries is not only a function of lost information, but changing words and content. Please see the appendix for more details.

**Cosine Similarity Distribution**  
**Official Report, News Articles, and Social Messages**



**Figure 3.1:** Distributions of cosine similarity scores. The solid line shows the distribution of similarity scores comparing the news articles to the official BEA report. The dashed line shows the distribution of similarity scores comparing the socially generated messages to the Reuters news article.

the article, which contained 17.7% negative economic information ( $p_i.001$ ).

As expected, there are clear differences in how Republican and Democrat participants wrote about the economy. Specifically, Republicans transmitted significantly more positive information about the economy ( $p_i.01$ ), while Democrats transmitted significantly more negative information about the economy ( $p_i.05$ ). Moreover, Republicans transmitted significantly less negative information than the Reuters article ( $p_i.001$ ), while there was no difference in negative content between the Reuters article and messages written by Democrats. This means that socially generated information can be prone to partisan biases absent in information from the media.

### **3.5 Study 2: What are the consequences of socially generated information? Research Design**

Study 1 demonstrated that information communicated by the media differs from information communicated by official reports and socially generated information is substantially different from both official reports and news articles. Study 2 examines the consequences of these differences by examining changes in information recall and subjective evaluations after exposure to a randomly assigned information treatment.

**Participants.** Participants were recruited from Survey Sampling International using a quota-based sampling procedure to ensure that the sample is demographically similar to the United States according to census records. The sample consisted of approximately 1,000 participants. Respondents ranged in age from 18 to 89 years old, with the average respondent being 48 years old. The sample was approximately evenly split between women (50.4%) and men (49.6%). The sample's ethnoracial composition is slightly different from the estimates based on Census records. Specifically, this sample over-represents Asian Americans (10.7% instead of 4.7%) and under-represents Latinos (10.1% vs. 16.3%). The sample was evenly split between Democrats (39.6%) and Republicans (39.2%), and a smaller sample of pure Independents (21.1%). Descriptive

statistics of this sample and comparisons between treatment groups are available in the appendix.

***Experimental Design.*** This experiment included four key components.<sup>6</sup> First, participants answered pre-treatment questions to measure their baseline knowledge about US economic performance and baseline attitudes about the economy and President Trump. Having pre-treatment measures of participants' objective knowledge and subjective evaluations allows me to make within-subject comparisons to more accurately examine *changes* in learning and evaluations after exposure to information. Second, participants answered a variety of questions that were part of other studies.<sup>7</sup> These questions serve to distract participants from the purpose of the study and to provide some distance between the pre-treatment measures and the treatment. Third, participants were randomly assigned to one of four treatment groups and presented with a corresponding informational treatment that either came from the media or another person. The treatment groups included: (1) Media, (2) Democrat Informant, (3) Republican Informant, and (4) Independent Informant. Participants in the media treatment received the Reuters article about US economic performance in the first quarter of 2017 used in Study 1. Participants in the social treatments—Democrat Informant, Republican Informant, and Independent Informant—were given one of the social messages generated in Study 1. Participants in the Democrat Informant condition received a message written by a Democrat in Study 1, participants in the Republican Informant treatment received a message written by a Republican in Study 1, and participants in the Independent Informant condition received a message written by an Independent in Study 1.<sup>8</sup>

As shown in Study 1 and by previous research (e.g. Ahn, Huckfeldt, and Ryan 2014), socially supplied information is likely to vary conditional on the partisanship of both the in-

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<sup>6</sup>See appendix for an illustration of this design.

<sup>7</sup>Many of these questions were about what cues individuals use to infer others' political attitudes. It is possible that the distractor questions influenced the way in which individuals interpreted the treatment. Priming participants to think about how they infer political views could have made partisan bias more salient when they eventually received an information treatment. However, all participants were exposed to the same distractor questions, so all participants should be similarly affected by this possibility. In addition, providing separation between the pre- and post-treatment measures is a stronger advantage than the impact the distractor questions could have on how participants interpreted the treatments.

<sup>8</sup>Study 1 Independents who reported leaning toward the Democratic or Republican party were considered partisans, thus only messages written by pure Independents were used in the Independent Informant treatment.



formation sender and receiver. As a result, it was important to randomly assign participants to receive information written by individuals with different partisan identities. However, because the information senders are likely to tailor information conditional on the partisanship of the intended recipient, I needed to account for this in assigning informational messages. In Study 2, participants are *randomly* assigned to receive a message written by a Democrat, Republican, or Independent in Study 1. Because Study 1 participants were randomly assigned to write messages to Republican, Democrat, or Independent recipients, Study 2 participants received a message that was intended to be read by someone of their own partisanship. For example, a Democrat Study 2 participant randomly assigned to the Republican Informant condition would receive an informational treatment written by a Study 1 Republican to a Democrat recipient. A Democrat Study 2 participant randomly assigned to the Democrat Informant treatment would receive a message written by a Study 1 Democrat to a Democrat recipient. This approach means that participants in the same treatment group are not all receiving the exact same informational treatment. However, in the real world, a Democrat would rarely receive information that was intended for a Republican. Thus, it would be unrealistic to present a Democrat participant with an informational message that was written for a Republican audience.

Instead of selecting only one message for each social treatment combination, participants within each treatment were presented with a randomly selected informational message. For instance, a Democrat participant in the Democrat Informant condition would read one of the messages written by a Democrat to a Democrat in Study 1. A different Study 2 Democrat participant randomly assigned to the Democrat Informant condition might receive a different message written by a Democrat to a Democrat in Study 1. To preserve the authenticity of the socially transmitted messages, I did not edit the messages to correct typos, spelling errors, or grammatical errors, and I preserved all capitalization and punctuation. I did, however, edit some messages in two ways. First, I used asterisks in place of letters used in profanity or expletives. Study 1 participants rarely used expletives, but in order to protect Study 2 participants from

viewing explicit content, I used asterisks over these words. Second, some participants opened their messages with statements like “I would tell them that” instead of writing a message directly to the hypothetical person. In these cases, I simply deleted the introductory phrase and left the rest of the message unedited.

After reading their randomly assigned informational treatment, participants were asked a series of post-treatment questions. They were asked the same objective knowledge and subjective evaluation questions as in the pre-treatment portion of the study to allow for within-subject comparisons. Participants were also given the opportunity to seek additional information about US economic performance and then were asked a series of political engagement questions. The study concluded by asking participants a few questions about their perceptions of the information source itself, such as whether they considered it trustworthy, biased toward Democrats or Republicans, and whether the structure of the information was similar to what they would experience in their daily lives.

### **3.5.1 Dependent Variable Measurement**

There are two dependent variables of interest in this study: the amount of objective information participants learned and the change in subjective evaluations. Both of these dependent variables are analyzed using both within-subject and between-subject measures.

*Learning.* I measure learning by calculating the change in the number of questions about information communicated in the original Reuters article participants answered correctly after exposure to an information treatment. Both before and after treatment, participants were asked to report whether each of six statements were true or false. The statements are shown in Table 3.2. Ultimately, learning is calculated by subtracting the number of correct answers to the pre-treatment questions from the number of correct answers to the post-treatment questions. Thus, positive learning scores indicate that participants answered more questions correctly post-treatment than

they did pre-treatment.<sup>9</sup>

*Evaluations.* I measure two types of subjective evaluations: economic performance and presidential approval. I first measure participants' perceptions of the economy, the focus of the information treatments, using Gallup's economic confidence index. Economic confidence is measured using the average response to two questions: (1) Right now, do you think that the economic conditions in the country as a whole are getting better or getting worse? (2) How would you rate economic conditions in this country today? I measure the confidence index both pre- and post-treatment, which allows me to calculate a within-subjects change in economic confidence. Thus, change in subjective evaluations of the economy (economic confidence) is measured by subtracting the pre-treatment economic confidence score from the post-treatment economic confidence score. Positive economic evaluation change scores indicate that participants had more positive evaluations of the economy post-treatment.

In addition to economic evaluations, I examine how participants evaluated the president. I use Gallup's presidential approval questions about overall presidential approval and presidential approval with respect to the economy. The full question wording is available in the appendix. Both questions were asked pre- and post-treatment, which allows me to capture changes in presidential approval in response to the information treatments. For both presidential evaluations, I subtract the pre-treatment approval from the post-treatment approval to create change in approval scores, such that positive values indicate greater approval post-treatment.

### **3.5.2 Independent Variable Measurement**

*Information Source Treatment.* The primary independent variable of interest is the information source — whether individuals were randomly assigned to receive information from

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<sup>9</sup>It is possible that prior exposure to these questions could alter the responses participants provide post-treatment. In particular, participants might pay attention to the content of those questions when reading their information treatment. The distractor questions should alleviate some of this potential bias. In addition, this bias is likely to overstate the amount of learning that occurs in all treatment groups, so between-subject comparisons should still be internally valid; the potential within-subject problem is more related to external validity.

the media or another person. In the analyses that follow, I compare individuals who received information from the media to those who received information from a Republican, a Democrat, or an Independent in Study 1. In regression models, those in the media treatment will be the omitted category.

***Ideal and Non-Ideal Informants.*** Following work in the political discussion network literature that builds upon Lupia and McCubbins (1998), I created a variable that indicates whether an individual received information from an ideal informant. Here, an ideal informant is one who has the same partisanship as and is more knowledgeable than the recipient. The ideal informant variable takes the value of 1 if the Study 2 participant received a message from a Study 1 participant of the same partisanship who was more knowledgeable, and 0 otherwise. I measure the relative knowledge-level by comparing the number of factual questions about the content of the article Study 1 participants answered correctly to the number of factual questions about the content of the article Study 2 participants answered at baseline — before exposure to the informational message. If the Study 1 participant answered more questions correctly than the Study 2 participant, then the Study 1 participant was considered more knowledgeable.

***Information-level Controls.*** Beyond analyzing the average treatment effects across the distribution of message and informant characteristics, I introduce a host of control variables based on the characteristics of the information and informant.

First, I control for properties of the text of the messages that might influence the dependent variables. I control for the *amount of information communicated* by using the hand-coded units of information in a message. I also control for the *similarity* between each socially generated message and the news article. I measure similarity with the same cosine similarity scores calculated in Study 1. Finally, I control for the *sentiment* of the information communicated using percentage of information that was positive about the economy, based on the hand-coded data.

***Recipient-level Controls.*** In addition to controlling for characteristics of the information, I control for characteristics of the recipient that could impact how much he or she was able to

learn and update his or her beliefs about the state of the economy. These characteristics should be evenly distributed between the treatment groups, and the balance table in the appendix suggests that this is the case. However, I still include the controls to show that the treatment effects are robust to these individual-level characteristics that could otherwise confound the relationship.

First, I control for political knowledge, which is measured using the number of standard American government knowledge questions participants could correctly answer. I used four questions commonly used on the American National Election Study (ANES),<sup>10</sup> meaning that the political knowledge score ranges from 0 (no questions answered correctly) to 4 (all four questions answered correctly). Next, I control for political interest, which is measured using another question common to the ANES. Participants were asked how interested they are in politics and public affairs on a scale that ranged from 1 (not at all interested) to 4 (very interested). I control for partisanship with a dummy variable that takes the value of 1 if the participant identified as a Democrat and 0 otherwise.

Finally, I control for demographic characteristics including age, race, gender, and education. Age is a continuous variable measured in years. I measure race using the participants' self-reported ethnracial identification. I dichotomize this variable such that it takes the value of 1 if the respondent is White and 0 otherwise. Similarly, I create a dummy variable for gender that takes the value of 1 if the participant was female and 0 otherwise. Finally, education is an ordinal variable that represents the highest level of education received. Higher values indicate more years of education.

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<sup>10</sup>The questions were: (1) "Do you happen to know how many times an individual can be elected President of the United States under current laws?" (2) "For how many years is a United States Senator elected - that is, how many years are there in one full term of office for a U.S. Senator?" (3) "What is Medicare?" and (4) "On which of the following does the U.S. federal government currently spend the least?"

## 3.6 Study 2 Results

### 3.6.1 Learning

Table 2 shows the knowledge questions used to measure how much individuals learned about US economic performance in the first quarter of 2017. The answers to each question were communicated in the Reuters article used in the media treatment and from which the social treatments were generated. Table 3.2 also shows the percentage of respondents who correctly answered each question before and after exposure to the information treatment. A significantly greater percentage of respondents correctly answered questions after exposure to treatment than before exposure to treatment for three out of the six questions. Across all of the questions, about one-third of the participants were able to learn successfully after exposure to information.

**Table 3.2:** Performance on Knowledge Questions

| Statement  | % Correct<br>(Pre) | % Correct<br>(Post) |
|--|--------------------|---------------------|
| The US economy grew in the first quarter of 2017   | 72.9*              | 73.6*               |
| GDP grew at the fastest rate since the second quarter of 2016 in the US                        | 50.6               | 57.0*†              |
| GDP in January - March tends to over-perform relative to the rest of the year                  | 54.1*              | 54.6*               |
| In the first quarter of 2017, GDP grew at a slower rate than the Trump administration's target | 59.9*              | 66.8*†              |
| Since 2000, the US economy has grown at an average rate of 0.5%                                | 44.0*              | 48.3†               |
| Consumer spending accounts for less than 1/4 of US economic activity                           | 53.6*              | 54.0*               |
| Average Number Questions Correctly Answered  | 3.33               | 3.54†               |

\*Significantly different from 50%

† Post-treatment significantly greater than Pre-treatment  
 $p < .05$

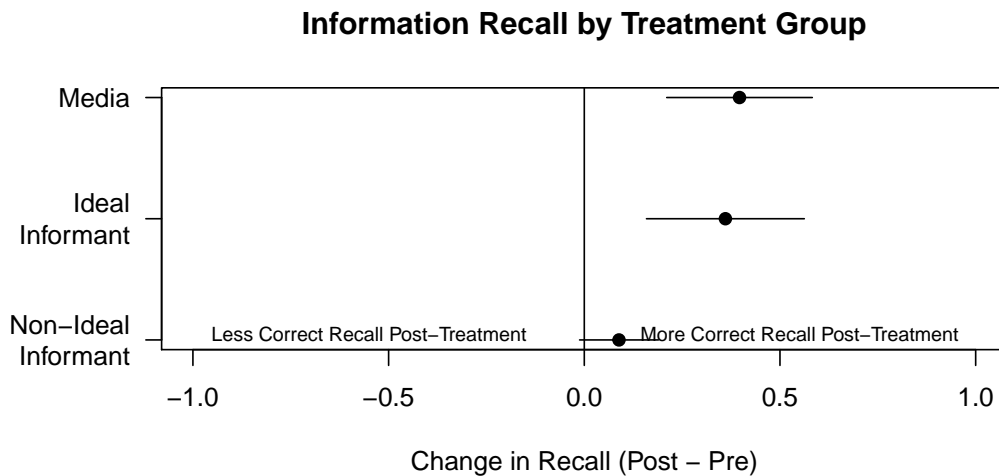
Next, I break down these overall trends by treatment group to examine how the informational treatments affected learning. Figure 3.2 shows the change in the number of correct responses before and after treatment by treatment group. Positive values indicate that a respondent answered more questions correctly after exposure to treatment. Specifically, +1 means that on

average, respondents answered one more question (out of six total) correctly after exposure to information. The results suggest that participants in the media treatment answered significantly more questions correctly after exposure to treatment than before exposure to treatment ( $p < .001$ ). Specifically, those in the media treatment answered approximately 0.4 more questions correctly after exposure to information.

Participants in the social treatments also learned from the information, answering more questions correctly after exposure to a social message than they did at baseline ( $p < .05$ ). While all participants showed evidence of learning, participants in the media condition learned significantly more than participants in the social conditions ( $p < .05$ ). Next, I examine whether ideal informants can compete with the media. Participants who received information from an ideal informant learned significantly more than participants who received information from a non-ideal informant ( $p < .05$ ). However, there was no statistically significant difference in learning between those who received information from an ideal informant and those who received information from the media, even though socially generated information is substantially different from and shorter than the news article, as shown in Study 1. These results hold if participants who answered all six questions correctly pre-treatment are excluded. Tables 22-23 in the appendix show that these results hold after controlling for individual and information level controls as discussed above.

### **3.6.2 Knowledge or Copartisanship?**

Why do ideal informants help individuals learn? In an effort to unpack the mechanism that drives the patterns shown in Figure 3.2, I examine the informants' self-reported motivations as they transmitted information. Study 1 participants, the informants, were asked to report what they were trying to accomplish with the message they wrote. The vast majority of respondents (74.4%) reported that they were trying to objectively inform the other person, 21.6% reported that they were trying to persuade the other person to view the economy or politicians the way that they do, 2.2% reported that they were trying to convince the other person to get involved in



**Figure 3.2:** Average change in recall after exposure to an informational treatment. Horizontal lines represent 95 percent confidence intervals. The vertical line at zero indicates no change in the amount of correct information recalled after exposure to treatment. Thus, values significantly greater than 0 indicate learning based on the treatment, values indistinguishable from 0 indicate no learning, and values less than zero indicate that respondents were misled by the informational treatments.

politics, and 1.7% reported that they were trying to mislead the other person about the state of the economy. While social desirability bias could surely be inflating the percentage of respondents who reported trying to objectively inform the other person, it seems that individuals overall were trying to be objective, reliable information shortcuts. Importantly, ideal informants were no more likely to report trying to objectively inform someone than non-ideal informants. Breaking apart the two conditions of being an ideal informant (knowledge and copartisanship), we see that there was no difference in motivation based on knowledge level, but those who wrote to copartisans were significantly more likely to report that they were trying to objectively inform than those who wrote to out-partisans ( $p < .05$ ).

If information recipients have some idea about informants' motivations, we should expect them to consider most informants to be objective, particularly if they are copartisans. Thus, information from copartisans should be viewed as more credible. Moreover, knowledgeable informants should be better equipped to transmit complete and accurate information. Breaking



apart knowledge and copartisanship suggests that knowledge is the most important characteristic for objective learning. Indeed, those who received information from someone who was more knowledgeable than they were learned significantly more than those who received information from someone who was less knowledgeable.<sup>11</sup> However, individuals learned the same amount of information from copartisans as out-partisans. This suggests that finding knowledgeable political informants is more important for learning than finding copartisan informants.

We might expect learning to vary based on the informant's partisanship and the specific content included in the message. In particular, a Democrat who transmits information that is positive about the economy should be viewed as particularly credible since it is not self-serving for a Democrat to say this because Republicans are currently in office. Likewise, positive information transmitted by a Republican should not be as informative because recipients might assume the Republican is simply passing on self-serving information. This study is not sufficiently powered to test this possibility, but future research should take care to do so, particularly in a context in which identifying self-serving information is unambiguous. For example, studying these effects in a case in which the economy was decidedly strong or weak and when the current administration has been in office for a longer period of time might make it easier to identify self-serving information.

### **3.6.3 Evaluations**

#### **Economic Evaluations**

Next I examine how different sets of information impact subjective evaluations of the economy and the president. I expect that participants will have more negative evaluations of the economy and of President Trump after exposure to a message from a Democrat, while participants

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<sup>11</sup>This pattern is strongest when all participants are included, regardless of their baseline knowledge levels. The ideal informant measure used here captures the relative knowledge gap between informants and recipients. This result is not robust to other operationalizations of ideal informant that do not account for the participants' baseline knowledge levels, which merits future study.

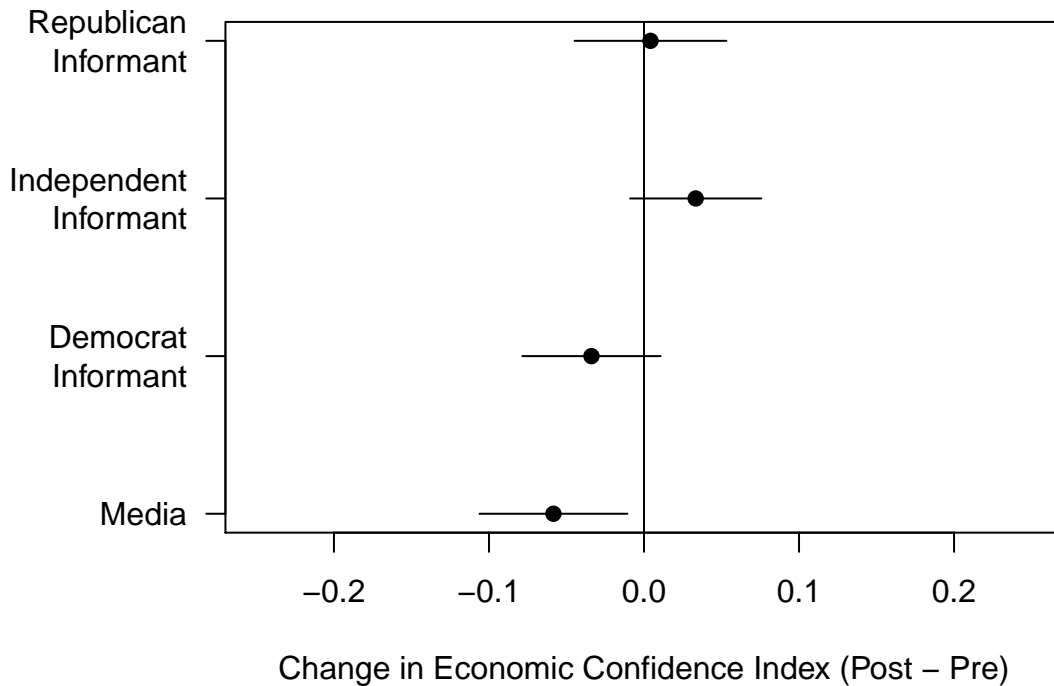
in the Republican Informant condition will have more positive evaluations of the economy and President Trump. I expect this change based on the bias that Democrats and Republicans in Study 1 might have included in the messages they passed on. As shown in Study 1, Democrats are more critical of President Trump and the economy he oversees, while Republicans are more positive about President Trump and the economy. In order to establish that the messages used in the social treatments were perceived as biased in the expected direction, I asked participants to indicate the extent to which they thought the information they received favored Democrats or Republicans. Overall, the perceived bias of the information treatments appeared to align with the partisanship of the author of the informational message.<sup>12</sup>

Figure 3.3 shows the average change in economic confidence after exposure to an informational message between treatment groups. Points to the right of 0 suggest an increase in economic confidence, that is, more positive evaluations of the economy, while points to the left of 0 indicate a decrease in economic confidence. Participants in the media condition had significantly lower economic confidence after exposure to the news article, compared to their baseline economic confidence ( $p < .05$ ). This is somewhat surprising because the article boasted a headline indicating that the economy had grown more than previously expected. However, the article also discussed some negative aspects of economic growth, such as the economic growth being slower than the 3 percent target rate set by the Trump administration. The social treatments did not appear to significantly affect participants' economic confidence. This relationship holds when analyzing Democrats, Republicans, and Independents separately: regardless of partisanship, participants in the social treatments did not significantly alter their economic confidence when exposed to socially supplied information about the economy. However, in the media treatment, only Democrats and Independents had significantly lower economic confidence after exposure to

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<sup>12</sup>On average, the media treatment was perceived as relatively neutral with only a slight Democratic bias. The Democrat Informant treatment messages were perceived as favoring Democrats more than the media treatment ( $p < .05$ ). The perceived bias in the Independent Informant treatment was statistically indistinguishable from the perceived bias of the media treatment. The Republican Informant treatment was perceived to favor Republicans significantly more than the media treatment ( $p < .05$ ) and the Democrat Informant treatments ( $p < .01$ ).

### Change in Economic Confidence Index



**Figure 3.3:** Change in economic confidence index by treatment group. Horizontal lines represent 95 percent confidence intervals. The vertical line about zero represents no change in economic confidence. Points to the right of 0 indicate perceptions that the economy was getting better post-treatment; points to the left of 0 indicate perceptions that the economy was getting worse post-treatment.

the news article; Republicans were not influenced by the news article.

### Presidential Approval

In addition to the modest changes in economic evaluations based on the informational message, I also observe modest changes in evaluations of President Trump. Similar to the evaluations of the economy, those who received the news article had significantly more negative evaluations of how President Trump is handling the economy after exposure to treatment. Socially generated information, even from an ideal informant, did not significantly influence subjective

evaluations of President Trump with respect to the economy. However, the news article did not influence evaluations of the President overall, but socially generated information did. Those who received information from a Republican or an Independent had significantly more positive evaluations of how President Trump is handling his job as president after exposure to that information ( $p < .05$ ). Breaking these results down by the partisanship of the recipient, Democrats updated their beliefs the most.

Together, the subjective evaluations results suggest that the media can significantly alter perceptions of economic performance and how the president is handling the economy, but some social messages can significantly alter presidential approval overall. In particular, when participants are exposed to information from someone likely to support the president, approval tends to increase more than when someone is exposed to information from someone likely to oppose the president. This relationship is especially strong among Democrats, who should be the least likely to support President Trump. Before exposure to treatment, about 74 percent of Democrats strongly disapproved of how Donald Trump is handling his job as president. After exposure to a message from a Republican, this dropped to 68 percent. These results suggest that those who are initially opposed to the president might be more likely to update their preferences in light of new information than those who are initially supportive of the president, especially if that information comes from a supporter of the president.

### **3.7 Discussion**

In this paper, I explored theoretical consequences of reliance on social information. As a proof of concept, I first demonstrated that socially transmitted messages are substantially shorter than information communicated by the media and official reports. Moreover, the content of this information is significantly different, as measured by the words used in each message. Information communicated by the media is about twice as similar to the official source than information

communicated by other people. Second, I examined how these important differences in information affect learning and evaluations. I found that participants exposed to socially generated information learned significantly less information than participants exposed to information from the media. However, those exposed to information from an ideal informant who shares their partisanship and is better informed learned significantly more than those exposed to information from a non-ideal informant, but the same amount as those who received information from the media. Thus, receiving information from ideal informants could serve as a valid information alternative to the media, just as previous research has theorized (Downs 1957; Katz 1957; Lupia and McCubbins 1998). Finally, I examined whether the information source affected evaluations. The results indicated that social information does not appear to affect economic confidence, but it can affect presidential approval, such that those exposed to information from a Republican or Independent showed significantly greater approval of President Trump compared to those who were exposed to information from another Democrat or the media. Altogether, these results suggest important implications for the public's self-educating potential.

This study is not without its limitations. First, this study examines only one issue area: economic evaluations. There are important reasons discussed throughout this paper for focusing on economic news, but it limits the external validity of this analysis. It is possible that social information transmission about other topics, such as elections, high- or low-salience policies, Supreme Court decisions, local politics, political scandals, or other topics might have different effects. There might even be different effects based on other economic news, such as unemployment data, which might be more familiar to the average reader than GDP. Future research should take care to examine whether the results presented here hold for different topics.

Second, participants in social treatments in Study 2 knew very little about the author of the information they received. Participants only knew the partisanship of the author and that he or she had just read a news article about the U.S. economic performance in the first quarter of 2017. In the real world, however, individuals who rely on others for information are likely to know their

informants personally and they can thus weigh the information they provide accordingly. That individuals knew little about the informants also limits the external validity of this analysis.

Third, the experimental designs used in Studies 1 and 2 are complex, making it possible that some analyses are under-powered. Beyond the possibility that some null results are simply under-powered, Study 2's complex design warrants further discussion. Participants in Study 2 were randomly assigned to read either a full news article or one of many messages generated by a Republican, Democrat, or Independent in Study 1. This means that most participants in the social treatments were exposed to a slightly different informational message. In addition, the messages were tailored toward the partisanship of the participant. This feature adds some external validity in that it ensures that Democrats receive information that was intended for a Democrat to read instead of information that was intended for a Republican to read, just like what would happen in the real world. However, it challenges the internal validity of the experiment by making the *treatment* less clear.

Despite these limitations, this analysis presents important results that improve our understanding of information transmission in American politics. Furthermore, it opens the door for ample opportunities for additional research utilizing similar research designs. Future research can build on the results presented here to examine the consequences of social information transmission about additional topics, using different initial news sources, using different characteristics to describe the social informants, and using different operationalizations of an ideal informant.

### **3.8 Conclusion**

Given that political discussion is one of the most common ways in which individuals acquire information about politics, it is imperative that we understand how this information source impacts political attitudes and behavior. To date, most research on the role of information in political attitudes and behavior focuses on information from the media. However, as I demonstrate

here, socially communicated information is substantially different from information communicated by the media. It is thus important that we begin to unpack the effects of socially supplied information, just as we have with information from the media. This paper makes an important contribution by providing a step toward understanding the consequences of social information transmission.

In part, I provide evidence in support of classic theories of opinion leaders using a novel research design. Similar to previous theories (e.g. Lupia and McCubbins 1998; Downs 1957), I find that individuals can learn the same amount from others who share their partisanship and are more knowledgeable as they would from the media. This even holds with messages much shorter than the full news article. However, this important theoretical work was largely previously tested using controlled, incentivized lab experiments in which individuals would communicate about whether a coin toss was heads or tails, for example (Lupia and McCubbins 1998). This line of research necessarily abstracted away from the content of the message to pinpoint the effects of the informants and recipients, even though communication scholars argue that the messenger, message, and audience are all important. The research design employed here allows us to broaden our understanding of the effectiveness of turning to others for information by reintroducing the content of the message to the analysis. Thus, there is an empirical contribution in this paper by providing new evidence in support of classic, oft-cited theories.

Social information is not a panacea for the lack of attention to and knowledge from the news media in American politics. Many individuals over-estimate the expertise of their social ties (Ryan 2011) and actively avoid discussing politics with those who are more politically knowledgeable in an effort to avoid psychological discomfort. This means that many of our political discussions are unlikely to be with ideal informants who can actually close the learning gap between the news media and social informants.

Beyond the impact of information source on learning, the effects on subjective evaluations were quite different. In particular, individuals did not update their beliefs about the economy, nor

the president's handling of the economy, in response to information from another person—even an ideal informant. This adds to the body of work suggesting that objective facts have minimal effects on political attitudes (Kuklinski et al. 2000). I show that indeed, individuals who learn the same objective facts still have different subjective evaluations. However, I build on previous work by showing that these effects extend beyond directional motivated reasoning based on one's partisanship and can be influenced by the information source. As such, these results speak to the debate over motivated and Bayesian reasoning (Coppock 2016), showing that the information source might be a crucial component in this process.

Individuals use information from the media differently than they use information from other people. Just as scholars have thoroughly explored the consequences of partisan media bias, I argue that we need to also consider the impact of bias in socially generated information. With the rise of *social* media, it is important to reconcile the media bias and political discussion literatures to understand the benefits and limitations of social political communication *relative* to the media.

Chapter 3, in full, is a reprint of pre-publication version of the material as it appears in the *American Political Science Review* 2019. Carlson, Taylor N. 2019. "Through the Grapevine: Informational Consequences of Interpersonal Political Communication." *American Political Science Review*. The dissertation author was the primary investigator and author of this paper.



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## 4 Heard it from a Friend: How Conversations Increase Misinformation

**Abstract.** Does political information source impact belief in political misinformation? Most research on political misinformation acceptance focuses on psychological explanations, such as motivated reasoning, trust, and political interest. While these explanations are important, they take as given that individuals are aware of the misinformation, ignoring the way in which they learned about it. In this chapter, I examine whether the source of political information impacts the likelihood with which an individual believes political misinformation. Using nationally representative survey data from the Cooperative Campaign Analysis Project, I find that individuals who rely on socially supplied political information are nearly twice as likely to believe two common pieces of political misinformation than those who rely on the media for political information, controlling for previous explanations. I supplement this analysis with data from an original nationally representative survey to identify patterns across eight unique political rumors across the political spectrum.

Democratic citizens are expected to be well-informed about political affairs (Habermas 1984; Lipset 1960; Berelson, Lazarsfeld, and McPhee 1954). However, the American public continues to be remarkably ill-informed about politics (Delli Carpini and Keeter 1996; Bartels

1996). While some argue that many Americans might still be able to vote rationally, despite low levels of knowledge, by using cognitive heuristics (Popkin 1991; Lupia 1994; Lupia and McCubbins 1998; Lupia 2015), others contend that in complex situations, heuristics fail and these uninformed opinions can distort public opinion and political debate (Kuklinski and Quirk 2000; Lau and Redlawsk 2001). Beyond examining the *uninformed* American public, scholars have recently turned their attention to understanding the *misinformed* American public (Nyhan and Reifler 2010; Nyhan 2010; Berinsky 2012; Berinsky 2015; Miller, Saunders, and Farhart 2015; Flynn, Nyhan, and Reifler 2017). Misinformed citizens form their opinions based on false, misleading, or unverified information that they believe to be true, while uninformed citizens know that they lack political information, but either do not seek out the information or rely on heuristics to participate in politics (Kuklinski et al. 2000). Some argue that misinformation could be a more dangerous threat to American democracy than a lack of information (Flynn, Nyhan, and Reifler 2017; Nyhan 2010).

There are many examples of misinformation<sup>1</sup> in modern American politics. Some of the most commonly explored pieces of misinformation are that Barack Obama was not born in the United States, that Barack Obama is Muslim, and that death panels are part of the Affordable Care Act (Nyhan and Reifler 2010; Miller, Saunders, and Farhart 2015; Berinsky 2012; Berinsky 2018). Scholars are particularly interested in understanding why individuals believe misinformation (Miller, Saunders, and Farhart 2015; Flynn Working Paper; Flynn, Nyhan, and Reifler 2017). The vast majority of this research has focused on individual, psychological factors that lead individuals to believe misinformation, with motivated reasoning being the generally accepted mechanism that drives misinformation endorsement. For instance, Miller, Saunders, and Farhart (2015) show that individuals who have low levels of trust, but high levels of political sophistication are most likely to believe misinformation—specifically conspiracy theories—that threaten their political views.

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<sup>1</sup>The literature currently uses several different terms to characterize misinformation, such as political rumors (Berinsky 2012), misperceptions (Flynn et al. 2017), and conspiracy theories (Miller, Saunders, and Farhart 2015). While there are some subtle—but important—differences between some of these terms (see Flynn et al. 2017 pp. 128-129 for a useful discussion), in this paper I will use misinformation as a general term.

While these psychological explanations are useful and theoretically interesting, they ignore the way in which individuals acquire political (mis)information in the first place. These studies essentially take as given that individuals are aware of a piece of political misinformation and simply measure whether they believe it is true or false. However, the way in which individuals learn about politics could have a profound impact on their exposure to political misinformation, as well as their likelihood of believing it. Only recently, in the wake of the 2016 election, have scholars begun to consider the source of the misinformation. Social media platforms, such as Facebook and Twitter, have been targeted as conduits for misinformation by allowing users to widely circulate “fake news.” Recent scholarship has sought to empirically estimate the amount of “fake news” to which individuals were exposed on Facebook and Twitter (Guess, Nyhan, and Reifler 2018; Lazer et al. 2018). Understanding how social media can facilitate misinformation is important. However, I argue that we need to consider the impact of information source on misinformation more broadly. In particular, current research overlooks the *social* features of social media, ignores the possibility of becoming misinformed through conversations with others, often does not make direct comparisons across a range of information sources, and misses the connection between exposure and belief. In this chapter, I seek to address some of these gaps in our current understanding of political misinformation.

In this chapter, I argue that individuals who rely on socially supplied political information—that is, those who receive most of their information about politics from other people—are more likely to believe political misinformation than those who receive most of their political information from the media. I test this argument using nationally representative survey data from the 2016 Cooperative Campaign Analysis Project. I show that individuals who report getting most or all of their information from other people are about twice as likely to believe two common pieces of political misinformation: that Barack Obama was not born in the United States and that Barack Obama is Muslim, even after controlling for previous explanations for political misinformation acceptance. I then conduct a supplementary analysis using data from an original nationally

representative survey. I present a rich descriptive analysis of the relationship between information source and misinformation across eight rumors, further highlighting the important role of our peers in misinformation. In this chapter, I therefore demonstrate the important influence that information source has on political misinformation, opening the door for future work to explore other antecedents to political misinformation acceptance.

## **4.1 Psychological Explanations for Belief in Misinformation**

Most of the research on misinformation points to cognitive biases to explain why individuals believe misinformation. The key idea is that false information acceptance is rooted in cognitive efficiency: the easier information is to process and recall, the more likely it is to be perceived as accurate (Schwarz et al. 2007). Information that is consistent with one's preexisting political views is easier to process (Taber and Lodge 2006; Lodge and Taber 2013), which means that individuals might be more likely to accept false information as true if it is consistent with their beliefs. This falls under the general framework of directionally motivated reasoning, which is how most individuals process political information (Redlawsk 2002; Taber and Lodge 2006). There is substantial evidence from political science research that individuals interpret or recall information that is more consistent with their political views (Jerit and Barabas 2012; Gaines et al. 2007), which has been applied to our understanding of misinformation.

One of the most robust findings in political misinformation research is that individuals are more likely to believe an inaccurate piece of information is true if it is consistent with their political views (Nyhan 2010; Nyhan and Reifler 2010; Miller, Saunders, and Farhart 2015; Hartman and Newmark 2012; Berinsky 2012; Berinsky 2015). For instance, Republicans and conservatives are more likely to believe that Barack Obama is Muslim (Hartman and Newmark 2012), that Barack Obama was not born in the United States (Berinsky 2012; Miller, Saunders, and Farhart 2015), that death panels were part of the Affordable Care Act (Nyhan 2010; Nyhan and



Reifler 2010; Miller, Saunders, and Farhart 2015), that global warming is a hoax (Miller, Saunders, and Farhart 2015; Berinsky 2012), and that Saddam Hussein was involved in the September 11th attacks (Miller, Saunders, and Farhart 2015). In contrast, Democrats are more likely to believe that the government knew about the September 11th attacks (Miller, Saunders, and Farhart 2015), that Republicans stole the 2004 election via voter fraud (Miller, Saunders, and Farhart 2015), that the Bush administration misled the public about the presence of weapons of mass destruction in Iraq (Miller, Saunders, and Farhart 2015), and that the government intentionally breached flood levees during Hurricane Katrina (Miller, Saunders, and Farhart 2015; Berinsky 2012). In each of these examples, there is a clear partisan bias toward accepting the misinformation as true if it is consistent with one's partisan beliefs, thus suggesting strong evidence of motivated reasoning guiding individuals toward misinformation acceptance.

While motivated reasoning is the main explanation for belief in misinformation, there is less consensus about the mechanisms through which it operates. For instance, some scholars argue that motivated reasoning drives misinformation acceptance through thoughtful, high-level processing (Kahan et al. in press). Taber and Lodge (2006) show that motivated reasoning is most common among the most politically knowledgeable individuals. As such, the most politically sophisticated individuals might accept ideologically consistent false information as true due to their ability to recognize that it favors their political views. There is substantial evidence that the most politically knowledgeable and interested individuals are the ones most likely to believe ideologically consistent false information (Flynn Working Paper; Miller, Saunders, and Farhart 2015).<sup>2</sup> Misinformation acceptance, thus, could be the result of effortful information processing.

In contrast, misinformation acceptance could be a consequence of low-effort information processing. Lodge and Taber (2013) show that individuals process and accept attitudinally congruent information faster than incongruent information, so accepting ideologically consistent false information could be a “gut-level,” immediate response. In addition, Flynn, Nyhan, and

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<sup>2</sup>But see Berinsky (2012) who finds that the most politically knowledgeable individuals are less likely to believe misinformation.

Reifler (2017) note that previous work suggests that individuals habitually accept information as true and must actively resist accepting it when it is false (Gilbert, Tafarodi, and Malone 1993). Thus accepting false information might be an artifact of the human tendency to accept information in general. Furthermore, recent work suggests that individuals may appear to accept ideologically consistent misinformation on surveys as a result of “partisan cheerleading” or responding to the factual question as an opinion question (Bullock et al. 2015; Prior et al. 2015). When incentivized to answer questions accurately, the partisan gap in misinformation acceptance virtually disappears (Bullock et al. 2015), suggesting that when individuals think carefully about the information, they can report the correct answer. However, specifically examining belief in prominent political rumors—that Obama is Muslim and that Obama was born outside the U.S.—Berinsky (2018) finds no evidence of “expressive responding.”<sup>3</sup>

In addition to the level of processing and, relatedly, the level of political sophistication, other scholars have examined psychological tendencies to endorse false information or conspiracy theories more generally. Specifically with respect to conspiracy theories, researchers have uncovered a general predisposition that biases individuals against powerful elites, generally accusing them of collusion (Uscinski, Klofstad, and Atkinson 2016; Oliver and Wood 2014; Abalakina-Paap et al. 1999). Abalakina-Paap et al. (1999) argue that individuals who feel isolated are distrustful of the system and are therefore more likely to endorse conspiracy theories—political or otherwise. Whitson and Galinsky (2008) similarly find that those with a high need for control are more likely to distort objective realities to maintain their psychological wellbeing. In so doing, individuals with a high desire for control are more likely to believe conspiracy

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<sup>3</sup>Measuring belief in political rumors is an active research area with conflicting evidence. In contrast to Berinsky’s (2018) recent evidence quelling concerns about expressive responding leading us to overestimate the proportion of the public that believes rumors, Lopez and Hillygus (n.d.) explore the possibility that individuals are “trolling” surveys and answering that they believe these rumors to be humorous. Other researchers have also considered that question wording can bias our estimates of the proportion of the public that believes political rumors. Krosnick, Malhotra, and Mittal (2014) specifically explore birtherism, but their argument could apply more broadly. In this paper, I am not able to disentangle genuine beliefs from expressive responses. As this literature continues to develop, researchers should explore the extent to which the relationship between information source and belief in misinformation is driven by expressive responding.

theories and could be prime candidates for believing political rumors. Focusing specifically on political misinformation, Miller, Saunders, and Farhart (2015) argue that individuals who distrust the government but are politically knowledgeable are more likely to believe political conspiracy theories. The lack of trust in government follows nicely from the work pointing to general predispositions for conspiratorial beliefs that center on isolation and fearing collusion within the government.

Whether belief in political misinformation is a consequence of motivated reasoning, effortful or heuristic information processing, psychological predispositions, or some combination of these mechanisms, scholars have focused great attention on explaining the psychological foundations of misinformation acceptance. These theories have relatively strong empirical support and altogether suggest that there is important individual-level variation in how individuals engage with political information that explains the extent to which they believe false information. However, this work overlooks the way in which individuals are exposed to political information, which could also impact the likelihood with which they accept misinformation, a point I develop in the next section.

## **4.2 Exposure: The Role of Information Source in Misinformation Acceptance**

In order to believe in political misinformation, individuals must first become aware of it in some way. Failing to consider how individuals were exposed to the political misinformation presents (at least) two important risks. First, we run the risk that individuals are first being exposed to the rumors, conspiracy theories, or other forms of misinformation on our surveys. This raises ethical concerns, but also challenges the extent to which the results genuinely reflect belief in the rumors or partisan cheerleading. As discussed previously, there is an open debate about whether survey research on rumors is subject to bias from expressive responding. If we do

not consider the information source, it seems even harder to rule out expressive responding as a possibility. Second, ignoring the information source limits our ability to explore solutions to the problems with misinformation. If we only focus on the individual-level characteristics that explain why individuals believe political rumors, we have a smaller scope of options to consider when trying to prescribe solutions. It is incredibly difficult to overcome cognitive biases, but there might be more room to develop ways to reduce misinformation if we consider the source. In the sections that follow, I review the developing literature on information source and misinformation.

#### **4.2.1 The Media**

The most explored source of (mis)information is the media. Flynn, Nyhan, and Reifler (2017) suggest that media coverage “shapes the flow of false claims to the public both directly in its coverage and indirectly via its influence on elite behavior” (p. 141). While the authors note that the media could have some role in disseminating false information to the public, they acknowledge that there is very limited research examining the role that the media plays in political misinformation acceptance. Previous research has shown that partisan media programs are more likely to contain exaggerated, sometimes misleading or inaccurate, claims about political opponents (Levendusky 2013). However, it is unclear whether this content *increases* misinformation acceptance among viewers, or whether these viewers were already misinformed and selected into viewing these programs that better match their views. Some work suggests that exposure to partisan media is positively correlated with misinformation acceptance. In particular, individuals who watch Fox News, a conservative media outlet, are more likely to be misinformed about global warming (Krosnick and MacInnis 2010), and the War in Iraq (Jacobson 2006; Kull, Ramsay, and Lewis 2003). These results do not necessarily identify a causal relationship and could simply reflect selective exposure. However, Jacobson (2006, p. 47) finds that even “among Republicans, 72 percent of the Fox watchers believed Iraq possessed WMD, compared to 46 percent of the rest.” While this still does not confirm a causal relationship, it is at minimum suggestive that the

media can facilitate exposure to and belief in misinformation.

How widespread is exposure to misinformation from the media? Most of the research on the media and misinformation discussed above focuses on *partisan* media outlets, such as Fox News and MSNBC. If partisan news outlets are more likely to spread misinformation, then it is worth considering who accesses these news sources. Arceneaux and Johnson (2013) explain that partisan media consumers make up a small percentage of the population and most Americans prefer entertainment news to political news. Their findings might lead us to believe that we are overestimating the influence the media has on misinformation. If a small portion of the population is consuming information from these partisan news outlets, and they are also already those most likely to be motivated reasoners, then perhaps the media echo chambers are in some way shielding the rest of the public from exposure to misinformation. That is, if those whose opinions are less crystalized are more likely to consume information from mainstream news sources that are less likely to communicate misinformation.

In response to concerns that politicians are communicating false information to the public more frequently, scholars have turned their attention to exploring the media's role in inadvertently misinforming the public by covering — and correcting — mistruths communicated by elites. Fact-checking has grown in prominence over the past several years, with websites such as Politifact and Fact-checker constantly monitoring statements made by politicians. The challenge for media outlets is to decide whether running a story that corrects a politician's false statements will actually help individuals update their beliefs to the truth, or simply reinforce the misinformation through repeated exposure. Extensive research suggests that correcting misinformation is incredibly challenging (e.g. Nyhan 2010; Nyhan and Reifler 2010; Nyhan and Reifler 2016; Thorson 2016). Some research suggests that fact-checking news stories and corrective information can lead individuals to update their factual beliefs (e.g. Nyhan and Reifler 2016; Bode and Vraga 2015), but individuals may not use that information to update their opinions on relevant politicians or policies (Nyhan, Porter, Reifler, and Wood 2019). While the media might be able to play a pivotal

role in reducing misinformation, particularly the mainstream sources, they also run the risk of increasing exposure to the misinformation in the first place.

#### **4.2.2 Social Information from the Water Cooler to the Internet**

We observe relatively widespread awareness of political misinformation in the general public. The media likely plays a role in spreading misinformation, but there are other information sources that could also contribute to the levels of misinformation we observe. How else might individuals become exposed to political misinformation? Given that most Americans are not particularly interested in politics, it should come as no surprise that many do not seek out political information on their own. Instead, many Americans can rely on other people in their social networks for political information. A 2014 survey by the American Press Institute suggests that about 65 percent of Americans report learning about current events through word of mouth, either in face-to-face conversations, on the phone, or through digital modes, such as email, text messaging, or social media. While the majority of Americans still report learning about current events directly from news organizations (88 percent), that 65 percent of Americans report learning about politics via word-of-mouth is stunning and merits further study. While individuals can serve as an important information source, this two-step flow of information (Katz 1957) could also facilitate exposure to misinformation.

The “two-step flow” theory of communication (Lazarsfeld, Berelson, and Gaudet 1944; Katz 1957; Katz and Lazarsfeld 1955) has been highly influential in developing our understanding of interpersonal political information diffusion. The theory suggests that information flows from the mass media to a group of interested, engaged, and motivated people (“opinion leaders”), to others. The idea is that individuals who are less interested in politics can save time and reduce information costs by asking the opinion leaders within their social networks for information instead of looking it up on their own. Perhaps this is what many of the 65 percent of Americans

who learn about current events through word-of-mouth are trying to do.<sup>4</sup> However, it is possible that opinion leaders can contribute to misinformation by distorting the information within political discussions in person (Carlson 2018; Carlson 2019) and online (Anspach and Carlson 2019), or by propagating rumors that they consume from other, often partisan, news outlets.

Focusing more directly on rumors, previous research has shown that social transmission is a defining component of rumor transmission (Fine and Ellis 2010). The decision to pass on false information is driven by factors largely rooted in emotion. Individuals want to emotionally arouse others with information they share (Berger 2011), which suggests that individuals are more likely to pass on information that evokes an emotional response (Lewandowsky et al. 2012). Information associated with emotions such as anxiety (Anthony 1973), disgust, fear, or happiness (Lewandowsky et al. 2012) are most likely to be propagated. Given that political content, particularly provocative rumors, can evoke emotions, particularly fear (Brader 2005; Brader, Valentino, and Suhay 2008; Brader 2006), disgust (Hodson and Costello 2007); and anxiety (Settle and Hassell 2013), it is reasonable to expect that individuals might be likely to discuss political rumors with their peers. Passing on information about rumors, whether they believe them to be true or not, likely makes for far more interesting conversation than discussing the latest GDP estimates. As a consequence, however, individuals could be exposed to misinformation from their friends, perhaps without corrections or context.

Many of these social information sharing mechanisms should apply both to face-to-face conversations, such as those that happen around the proverbial water cooler, and in social media contexts. Given the recent public outcry targeting online social media as a platform to spread misinformation, there is more research on the relationship between social media and misinformation than there is on face-to-face conversations. For example, several scholars have shown that millions of people were exposed to false information on social media over the course

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<sup>4</sup>In Chapter 1, I present survey data that suggests that most individuals choose to rely on their peers because they find them to be more trustworthy and less biased than the media. There is limited evidence that individuals choose their peers for information to reduce information costs.

of the 2016 election cycle (e.g. Guess, Nyhan, and Reifler 2018; Lazer et al. 2018). While bots might be responsible for some of the viral spread of misinformation online (Shao, Ciampaglia, Varol, Yang, Flammini, and Menczer 2018), the human component of social sharing is essential. Shao and colleagues (2018) show that bots played an important role in diffusing false content on social media, but one of the keys to their effectiveness was targeting real accounts with many followers, hoping that they would re-share the content, thereby spreading the information within their networks. Similarly, Vosoughi, Roy, and Aral (2018) argue that false news spreads more than true news on social media websites because humans are more likely to spread it, whereas bots spread true and false content at equal rates. While the opinion leaders might not be generating the false content here, they are playing an important role in exposing their peers to it. Moreover, individuals are more likely to read posts endorsed by individuals in their social networks (Anspach 2017).

Social information, broadly construed, plays an important role in exposing individuals to misinformation. While media outlets are, presumably, subject to professional standards to report the facts (Graves, Nyhan, and Reifler 2016), individuals are not. Thus, while the media arguably plays a role in covering and propagating misinformation to the public, individuals face lower costs to doing so. Research on rumor transmission in social psychology suggests that rumors are influential in part because of their widespread social transmission (Allport and Postman 1947; Lewandowsky et al. 2012), a finding which has been extended to political rumors (Fine and Ellis 2010; Berinsky 2012). Anspach and Carlson (2018) show that about 21 percent of social media “shares” of an article contain additional social commentary generated by the poster, with about 17 percent of that commentary being inaccurate.<sup>5</sup> This means that individuals are doing more than just propagating misinformation they consume elsewhere: they are generating it themselves, perhaps through similar mechanisms outlined by Carlson (2018, 2019). The *social* component of online social media arguably has an important effect on misinformation exposure. More broadly,

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<sup>5</sup>It is important to note that these percentages come from an examination of one news article and future study merits investigating this at scale.



those who rely on other people for political information could be exposed to a stronger dose of misinformation than those who get information directly from the media.

Misinformation awareness and acceptance are not the same, but social information is likely to affect both. Information from our peers might also be more influential in shaping our beliefs. Anspach and Carlson (2019) show that individuals were more likely to believe misinformative commentary posted by an anonymous user than information contained in a news article preview, even when both were presented simultaneously. Anspach, Arceneaux, and Jennings (2019) similarly show that news article previews on social media websites, such as Facebook, can lead individuals to become overconfident in their knowledge on a topic, which can have enormous implications if we consider the possibility that they are exposed to false content as well. Moreover, if individuals who rely on their peers for information are generally less knowledgeable about politics, they might be less equipped to question the information shared with them by their peers, leading them to accept potentially false information. Ultimately, I argue that individuals who rely on other people for political information will be more likely to accept political misinformation than those who get information directly from the media.

### **4.3 Method**

To test this theory, I use nationally representative survey data from the 2016 Cooperative Campaign Analysis Project (CCAP). Approximately 12,500 participants completed a baseline survey, fielded between June 3 and June 15, 2016. After the initial baseline interview, unique, nationally representative subsets of the initial sample completed different surveys throughout the campaign season. About 10,157 of the original respondents completed a final survey fielded after the election (November 18-December 27, 2016). For this paper, I use the baseline and post-election data, in addition to data from original questions added to an institutional CCAP module, which included a nationally representative sample of 1,000 respondents. The data were

collected from September 29-October 3, 2016.

### **4.3.1 Independent Variables**

The primary independent variable of interest is an individual's preferred political information source: the media or other people. To measure individuals' preferred political information source, I used the following original question included on the CCAP: "Where do you usually get your information about politics, candidates, and elections?" The response options were: "I get all of my information directly from media sources such as newspapers (in print or online), TV, or radio," "I get most of my information directly from media sources such as newspapers (in print or online), TV, or radio," "I get most of my information directly from other people," and "I get all of my information directly from other people." For simplicity, I dichotomize this variable, such that those who reported getting most or all of their information from other people are coded with the value of 1, and those who reported getting most or all of their information from media sources are coded with the value of 0.

Although other surveys, such as the American National Election Study (ANES), Cooperative Congressional Election Study (CCES), and General Social Survey (GSS), include questions about political news consumption, "other people" is rarely—if ever—included as a source of political information. My theory depends on measuring whether individuals get information socially (from other people) or from media sources. As such, it was important to introduce an original survey question.

Of course individuals who select into each information source are likely to be different in meaningful ways that could also drive misinformation acceptance. For instance, individuals who are more interested in and more knowledgeable about politics are more likely to get information from the media than other people. However, this difference actually works against my argument because the most politically knowledgeable and interested individuals are more likely to believe

misinformation (Miller, Saunders, and Farhart 2015; Flynn Working Paper).<sup>6</sup> It is also possible that individuals who do not trust the media are more likely to rely on other people for information,<sup>7</sup> *and* are more likely to believe in misinformation (Miller, Saunders, and Farhart 2015). This is a valid concern, but one that I am able to control for in my analysis. After indicating their primary source of political information, individuals were asked why they choose to get information from that source. These open-ended responses were coded by an independent coder, blind to the expectations of this study and to the information source on which individuals reported relying. Trust did arise as the most important reason for choosing an information source: individuals who rely on the media do so because they do not trust other people to be accurate and unbiased; individuals who rely on other people do so because they do not trust the media to be accurate and unbiased. I control for whether trust in the information source was a reason for choosing that source in this analysis.

### **4.3.2 Dependent Variables**

The outcome of interest in this analysis is whether individuals believe in misinformation. There are several pieces of misinformation, sometimes known as political rumors or conspiracy theories, commonly explored in political science. For example, Nyhan and Reifler (2010) examine the extent to which individuals believe that Barack Obama is a Muslim, Barack Obama was not born in the United States, and Death Panels are part of the Affordable Care Act. Miller, Saunders, and Farhart (2015) specifically examine conspiracy theories, including four that disparage Republicans and four that disparage Democrats. Two commonly explored pieces of misinformation were examined in the 2016 CCAP: where Barack Obama was born, and Barack

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<sup>6</sup>Supplementary analyses from data collected in Chapter 2 of this dissertation suggest that individuals who are more interested in politics are also more likely to distort information as they transmit it to others. This follows from the idea that individuals who are more interested in politics might (1) be more equipped to recognize information that supports their views and thus alter their messages accordingly; and (2) feel that they can benefit from sharing this [distorted] information with their peers.

<sup>7</sup>Evidence presented in Chapter 1 of this dissertation suggests that this is the case.

Obama's religion. While there are ample other pieces of political misinformation that could have been explored, I am limited to those included in the CCAP.<sup>8</sup>

Thus, I have two key independent variables. The first is whether individuals believe that Barack Obama was born outside the United States. I created a dummy variable that took the value of 1 when the participant reported that Barack Obama was not born in the United States, thus believing the misinformation, and 0 otherwise. About 15.7 percent of the sample reported that Obama was not born in the United States. The second dependent variable of interest is whether individuals believe that Barack Obama is Muslim. I created a dummy variable that took the value of 1 when the participant reported that Barack Obama is Muslim, thus believing the misinformation, and 0 otherwise. About 24.1 percent of the sample reported believing that Barack Obama is Muslim.

### **4.3.3 Control Variables**

I introduce a host of control variables that have been used to explain misinformation acceptance in previous research. Following Miller, Saunders, and Farhart (2015), I control for political knowledge, ideology, and trust in government, as well as interactions between these three variables. Because Miller, Saunders, and Farhart (2015) used ANES data and an original Mechanical Turk Survey, the survey questions I have available in the CCAP are somewhat different. For instance, Miller, Saunders, and Farhart (2015) create a political knowledge index using fourteen political knowledge questions in the ANES. These questions are not available in the CCAP, so in my analysis, political knowledge is measured using a method similar to that developed by Abrajano (2015). In particular, I examine whether participants could properly place political figures on a liberal-conservative ideology scale. Participants in the CCAP were asked to identify the ideological positions of Donald Trump, Hillary Clinton, Bill Clinton, and Barack

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<sup>8</sup>I supplement the analysis using CCAP data with a descriptive analysis using data from an original survey that examines beliefs in eight prominent political rumors.

Obama. Responses were considered “correct” if Donald Trump was identified as conservative and Hillary Clinton, Bill Clinton, and Barack Obama were identified as liberal. I then calculated the total number of accurate identifications and rescaled the variable to range between 0 and 1, where 1 represents the highest political knowledge and 0 represents the lowest political knowledge. While this measure of political knowledge might capture different aspects of political knowledge than what Miller, Saunders, and Farhart (2015) capture with their measure, it is the best approximation I have with the CCAP data.

Next, I control for ideology, which several previous papers have identified as important. Motivated reasoning is one of the most commonly theorized factors that influence misinformation belief (Flynn, Nyhan, and Reifler 2017; Nyhan and Reifler 2010; Miller, Saunders, and Farhart 2015; Berinsky 2012; Nisbet, Cooper, and Garrett 2015; Kahan et al. in press). The key idea here is that individuals are more likely to believe something is true if it is consistent with their political beliefs. Focusing on the two pieces of misinformation examined in this paper, previous research has shown that conservatives are significantly more likely to believe that Barack Obama is Muslim and that Barack Obama was not born in the United States than are liberals (Nyhan and Reifler 2010; Miller, Saunders, and Farhart 2015). Thus, it is important to control for ideology in this analysis. Miller, Saunders, and Farhart (2015) argue that ideology should be more closely tied to these beliefs than partisanship, but find similar effects of both partisanship and ideology. To be consistent with previous work, I control for ideology, but include partisanship instead in an analysis in the appendix.

Also following Miller, Saunders, and Farhart (2015), I control for trust in government. The authors argue that individuals who do not trust the government will be more likely to endorse conspiracy theories. More generally, Abalakina-Paap et al. (1999) suggest that individuals who feel isolated and powerless, and thus low levels of trust, are more likely to believe conspiracy theories. While I cannot measure trust with a trust index like previous researchers have used because of the survey questions available in the CCAP, I use trust in government as an approximation.

Flynn (Working Paper) finds that political interest is the strongest individual-level correlate of confident misperceptions, across an examination of eleven political misperceptions. As such, I also control for political interest. I use a question that asks how interested respondents were in politics this year.

In addition to testing previous theories of what drives belief in misinformation, I introduce nearly all control variables used by previous researchers in testing their theories. Specifically, I control for the Big 5 personality characteristics (extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience), authoritarianism, gender, race, education level, external political efficacy, religiosity, age, and income (Miller, Saunders, and Farhart 2015). Each control variable is rescaled to 0-1.<sup>9</sup>

## 4.4 Results

Before examining the results from the models, Table 4.1 shows a simple cross-tabulation of the relationship between information source and belief in the two rumors of interest. The results suggest that the majority of respondents did not believe the rumors. However, when we examine variation in belief based on information source, we see an important pattern. Among individuals who reported receiving information from the media, 14.7 percent believed that Obama was born outside of the United States, compared to 30.3 percent of individuals who reported receiving information from others. We observe a similar pattern for belief that Obama is Muslim: 23.2 percent of those who received information from the media believed the rumor, whereas 36.4 percent of those who received information from their peers believed the rumor. In both cases, we observe that those who receive information from their peers are much more likely to believe the rumor than those who receive information from the media.

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<sup>9</sup>I was not able to control for need for cognition or need to evaluate, which previous researchers, such as Miller, Saunders, and Farhart (2015) have. Survey questions for these variables were not available in the CCAP.

**Table 4.1:** Relationship Between Information Source and Belief in Rumors

|  | Believed<br>Rumor | Did Not Be-<br>lieve Rumor |
|--|-------------------|----------------------------|
| <b>Obama was Born Outside the U.S.</b> |                   |                            |
| Other People                           | 30.3              | 69.7                       |
| Media                                  | 14.7              | 85.3                       |
| <b>Obama is Muslim</b>                 |                   |                            |
| Other People                           | 36.4              | 63.6                       |
| Media                                  | 23.2              | 76.8                       |

#### 4.4.1 Controlling for Previous Explanations

Building on these bivariate results, Table 4.2 shows the results for the logistic regressions using the described variables. Columns 1 and 2 show the results for belief in the myth that Barack Obama was born outside the United States and Columns 3 and 4 show the results for belief in the myth that Barack Obama is Muslim. Across all four models, there is a positive, statistically significant association between socially supplied information and belief in political misinformation, even after controlling for previous explanations for belief in misinformation. Consistent with previous findings, political knowledge was also positively associated with belief in misinformation. At least in the models without interactions, conservative ideology was positively associated with belief in these two pieces of misinformation, which have previously been shown to be endorsed by conservatives. I conducted a likelihood ratio test to compare the models that include the social information variable that I introduce in this paper to the models advanced by previous work, such as Miller, Saunders, and Farhart (2015). I find suggestive evidence that the social information variable improves model fit ( $p < .10$ ). However, the models with and without the social information variable do not fully replicate the findings presented in Miller, Saunders, and Farhart (2015), which could be due to differences in the sample or the survey questions used to construct variables.

**Table 4.2: Impact of Information Source on Belief in Misinformation**

|  | <i>Dependent variable:</i>         |                      |                          |                      |
|--|------------------------------------|----------------------|--------------------------|----------------------|
|  | Believes Obama was Born Outside US |                      | Believes Obama is Muslim |                      |
|  | (1)                                | (2)                  | (3)                      | (4)                  |
| Social Information                                   | 0.881**<br>(0.397)                 | 0.911**<br>(0.400)   | 0.837**<br>(0.359)       | 0.837**<br>(0.360)   |
| Trust Info Source                                    | -0.015<br>(0.272)                  | -0.048<br>(0.277)    | -0.056<br>(0.228)        | -0.089<br>(0.230)    |
| Political Knowledge                                  | 1.117***<br>(0.389)                | 3.128**<br>(1.219)   | 0.787***<br>(0.300)      | 1.435<br>(0.906)     |
| Ideology (Conservative)                              | 1.725***<br>(0.259)                | -0.043<br>(1.469)    | 1.143***<br>(0.204)      | 0.560<br>(1.264)     |
| Trust in Government                                  | 0.436<br>(0.283)                   | 1.265***<br>(0.475)  | -0.075<br>(0.264)        | 0.386<br>(0.441)     |
| Interest   | -0.307<br>(0.374)                  | -0.296<br>(0.377)    | -0.008<br>(0.318)        | -0.019<br>(0.319)    |
| Political Knowledge x Trust in Government            |                                    | -1.902**<br>(0.968)  |                          | -0.624<br>(0.724)    |
| Ideology x Trust in Government                       |                                    | 0.168<br>(0.921)     |                          | -0.269<br>(0.914)    |
| Political Knowledge x Ideology                       |                                    | 1.236<br>(2.030)     |                          | 1.322<br>(1.711)     |
| Political Knowledge x Ideology x Trust in Government |                                    | 0.740<br>(1.455)     |                          | -0.107<br>(1.304)    |
| Constant   | -5.895***<br>(1.060)               | -6.700***<br>(1.194) | -4.686***<br>(0.868)     | -5.122***<br>(0.983) |
| Observations   | 836                                | 836                  | 836                      | 836                  |
| Log Likelihood                                       | -281.948                           | -276.599             | -376.505                 | -373.731             |
| Akaike Inf. Crit.                                    | 603.897                            | 601.199              | 793.010                  | 795.462              |

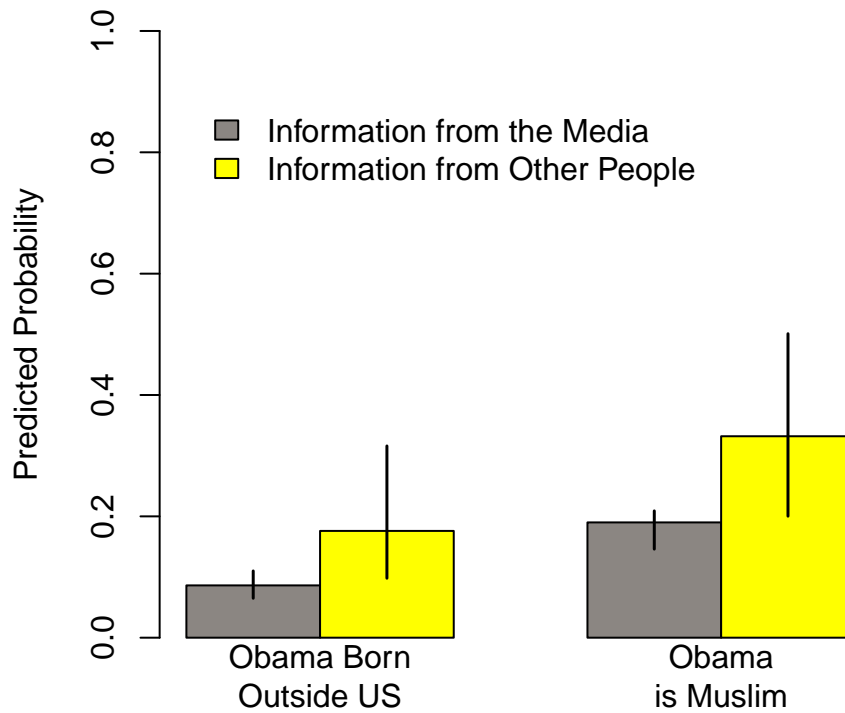
Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01  
Controls included in all models.



To better interpret the results, Figure 4.1 shows the predicted probability of believing each piece of political information for those who get information from other people and the media, holding all other model covariates at their means. While belief in both pieces of misinformation is low overall, individuals who rely on socially supplied information are predicted to be nearly twice as likely to believe that Barack Obama was born outside the US and that Barack Obama is Muslim than those who rely on the media for political information. However, as indicated by the wider confidence intervals on the yellow bars, which represent individuals who rely on socially supplied information, there are far more individuals who report getting information from the media than those who get information from others.

### Predicted Probability of Believing Misinformation



**Figure 4.1:** Predicted probability of believing in misinformation, based on the logistic regressions in Table 4.2. All covariates are held at their means. Vertical lines represent 95 percent confidence intervals. Predicted probabilities were estimated using Zelig.

#### 4.4.2 Matching Analysis

As discussed previously, individuals who choose to learn about politics from their peers are likely to be different from individuals who choose to learn about politics from the media. For example, as discussed previously, individuals who rely on their peers for information might receive a stronger dose of exposure to misinformation than those who receive information from the media. Moreover, information that is communicated socially might influence attitudes — and misinformation acceptance — more than information communicated by the media. Yet, previous research suggests that those more interested in and knowledgeable about politics are actually those most likely to believe political rumors and conspiracy theories (Miller, Saunders, and Farhart 2015; Flynn 2017). There are important observable characteristics that might confound the relationship observed in Table 4.2.

To address the possibility of confounds, I use nearest neighbor matching to prune the data to create highly similar groups, with the exception of the information source treatment. Specifically, I match on trust in government, political knowledge, ideology, trust in information source, interest in politics, the Big 5 personality characteristics, authoritarianism, gender, race, education, political efficacy, religiosity, age, and income.<sup>10</sup> After pruning the data, I am left with 98 respondents. Table 4.3 presents the results from the same regression models shown in Table 4.2, but using the matched data instead of the full sample. The results in Table 4.3 are largely consistent: individuals who receive most of their information about politics from other people were significantly more likely to believe that Obama was born outside of the United States ( $p < .05$ ). There is suggestive evidence that individuals who rely on their peers for information were also more likely to believe Obama is Muslim ( $p < .10$ ).

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<sup>10</sup>The results are robust to matching on fewer characteristics.

**Table 4.3:** Matched Data: Impact of Information Source on Belief in Misinformation

|  | <i>Dependent variable:</i>         |                          |                          |                          |
|--|------------------------------------|--------------------------|--------------------------|--------------------------|
|  | Believes Obama was Born Outside US |                          | Believes Obama is Muslim |                          |
|  | (1)                                | (2)                      | (3)                      | (4)                      |
| Social Information                                   | 1.576**<br>(0.713)                 | 1.590**<br>(0.764)       | 1.132*<br>(0.594)        | 1.251*<br>(0.669)        |
| Trust Info Source                                    | -0.578<br>(0.958)                  | -0.861<br>(1.029)        | -0.680<br>(0.866)        | -0.966<br>(0.969)        |
| Political Knowledge                                  | 0.939<br>(1.128)                   | 74.548<br>(11,695.920)   | 1.269<br>(1.065)         | 47.676<br>(7,571.534)    |
| Ideology (Conservative)                              | 1.407*<br>(0.742)                  | -31.337<br>(6,629.289)   | 0.611<br>(0.671)         | -2.353<br>(4.410)        |
| Trust in Government                                  | 2.811**<br>(1.262)                 | 4.617<br>(3.087)         | 0.141<br>(1.172)         | -0.225<br>(2.080)        |
| Interest   | -0.610<br>(0.979)                  | -0.630<br>(0.955)        | -0.368<br>(0.862)        | -0.279<br>(0.918)        |
| Political Knowledge x Trust in Government            |                                    | -74.230<br>(11,695.920)  |                          | -47.504<br>(7,571.533)   |
| Ideology x Trust in Government                       |                                    | 29.436<br>(6,629.288)    |                          | 0.780<br>(3.602)         |
| Political Knowledge x Ideology                       |                                    | -144.671<br>(27,591.750) |                          | -129.451<br>(17,085.610) |
| Political Knowledge x Ideology x Trust in Government |                                    | 149.676<br>(27,591.750)  |                          | 133.766<br>(17,085.600)  |
| Constant   | -9.272***<br>(3.462)               | -11.085**<br>(4.673)     | -7.782**<br>(3.064)      | -7.063*<br>(3.837)       |
| Observations   | 98                                 | 98                       | 98                       | 98                       |
| Log Likelihood                                       | -36.577                            | -33.481                  | -41.465                  | -37.199                  |
| Akaike Inf. Crit.                                    | 113.153                            | 114.962                  | 122.930                  | 122.398                  |

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01  
Controls included in all models.

## **4.5 What About Other Rumors?**

I complement the results from the CCAP data with data from an original survey using a nationally representative sample of U.S. adults. The data were collected in July of 2017 using Survey Sampling International. This survey importantly included questions about information source and belief in political rumors, which allows me to present important descriptive analyses. The survey does not have data to allow me to replicate the results from the CCAP analysis. Instead, this section primarily serves to present a richer, bivariate analysis across a range of rumors explored by other researchers to see if the same general patterns hold and to address some of the limitations of the CCAP analysis.

A key limitation of the CCAP analysis is that it only explores two prominent rumors, both of which are more likely to be believed by Republicans than Democrats. Exploring whether social information appears to be associated with belief in a wider range of rumors, particularly those that span the political spectrum, is important. Another limitation of the CCAP analysis is that the information source measure did not allow much room for respondents to indicate that they received information from multiple sources. To remedy this, the descriptive analysis that follows includes additional measures of information source that more fully allow individuals to report their information sources. Relatedly, just because individuals receive most of their information from others does not necessarily mean that that is where they learned about the rumors in which they believe. To improve upon this, I ask respondents to report where they specifically recall learning that a rumor was true or false.

### **4.5.1 Information Source Preferences**

At the beginning of the survey, participants were asked to report what percentage of the information they receive about politics comes from a range of sources. Instead of asking participants to choose between others and the media directly, as I did in the CCAP analysis, I

allowed individuals to reflect upon their “news diets.”<sup>11</sup> The results suggest that Television is still the dominant information source: on average, respondents receive about 42.6 percent of their information about politics from TV. The next most common information source was newspaper articles that individuals seek out on their own, at about 21.6 percent of the average news diet. The last direct media source examined was radio, which made up about 10 percent of individuals news diets. Turning to the social sources, 9.9 percent of the information individuals have about politics comes from news articles referred to them by friends. This is likely concentrated on social media websites, as discussed previously. Finally, about 16 percent of individuals’ information about politics comes from conversations with other people.

Looking just the percentage of information acquired from conversations with others, I find that only about 2 percent of respondents reported receiving 100 percent of their information from conversations. About ten percent of respondents reported receiving at least half of their information from conversations with others. At the other end of the spectrum, about 30.7 percent of respondents reported receiving none (0 percent) of their information from conversations with others. About 5 percent of respondents reported receiving at least half of their information from news articles referred to them by a friend, while 52 percent reported receiving none of their information in this way. Similar to conversations with others, only 2 percent of respondents reported acquiring all of their information about politics from newspaper articles (online or in print) that they sought out on their own. About 32 percent of respondents reported receiving none of their information directly from news articles. At a very basic level, it seems that, consistent with the results from the CCAP analysis, other people are an important information source, even if they are not the most dominant.

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<sup>11</sup>Participants were asked: “People get information about politics, candidates, and elections from many different sources. How about you? About what percent of the information you have about politics comes from each source? Television, Radio, Newspaper articles (online or in print) that I seek out on my own, Newspaper articles (online or in print) that are referred to me by a friend, Conversations with other people (online or face to face).”

## 4.5.2 Beliefs in Rumors

The next question, then, is to understand how information source preferences are associated with beliefs in political rumors. In this survey, participants were asked to indicate whether eight statements that reflected political rumors were true or false, or whether they did not know. The eight rumors were drawn from Miller, Saunders, and Farhart (2015). Specifically, participants reported their beliefs about four rumors that conservatives should be more likely to believe: (1) Barack Obama was not born in the United States; (2) Barack Obama is Muslim; (3) Death panels are part of the Affordable Care Act; and (4) Global warming is a hoax.<sup>12</sup> About 23 percent of respondents believed that Obama was born outside the U.S. and 24 percent believed he was Muslim. About 16 percent of respondents believed that death panels were part of the Affordable Care Act, while 17 percent believed that global warming was a hoax. Republicans were about twice as likely as Democrats to believe each of these rumors.

Turning to the liberal rumors, I examined beliefs about the following statements: (1) The government knew about 9/11 before the attacks; (2) The flood levee breach during Hurricane Katrina was intentional; (3) The Bush Administration misled the public about the presence of weapons of mass destruction in Iraq; and (4) Republicans stole the 2004 election via voter fraud in Ohio. About 27 percent of the respondents believed that the government knew about 9/11 before the attacks happened. Democrats and Independents were more likely to believe this rumor than were Republicans, but the gaps were not substantially large. About 12 percent of respondents believed that the levee breach was intentional, however there were no differences in belief based on partisanship. About 52 percent of respondents believed that the Bush Administration misled the public about the presence of WMD in Iraq, however Democrats were more than twice as likely to believe this than were Republicans. Finally, 16 percent of respondents believed that the

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<sup>12</sup>In order to avoid biased results if individuals are simply more likely to report True or False, some of the statements were written such that answering “False” means that the respondent was misinformed. Specifically: “Death Panels are not part of the Affordable Care Act” and “global warming is real” for the conservative rumors. For the liberal rumors: “The flood levee breach during Hurricane Katrina was unintentional.”

Republicans stole the 2004 election via voter fraud in Ohio, but the proportion of Democrats who believed this rumor was more than double the proportion of Republicans who did.

Is information source associated with belief in misinformation? I begin by simply examining the correlation between the percentage of information individuals reported acquiring from each source and the number of rumors they believed. Overall, 59 percent of respondents believed at least one of the eight rumors examined. The results presented in Table 4.4 suggest a few important correlational patterns. First, there is not a statistically significant correlation between the amount of information one consumes from television and the number of rumors one believes. It is possible that these patterns might differ if I were to explore specific TV programs, particularly those on partisan cable news shows, since previous research has shown that watching Fox News is associated with increased disbelief in global warming (Krosnick and MacInnis 2010), and that the Bush Administration misled the public about WMD in Iraq (Jacobson 2010). Similar to the results for TV, there is not a statistically significant correlation between the amount of information one receives from conversations with others and the number of rumors he or she believes. This stands in contrast to the results presented in the CCAP analysis and challenges the overarching theory presented here.

**Table 4.4:** Correlation Between Information Source and Number of Rumors Believed

|   | <i>r</i> | <i>p</i> |
|---|----------|----------|
| Television                              | -.03     | .38      |
| Radio                                   | .101     | .001     |
| Newspaper articles sought independently | -.11     | .001     |
| Newspaper articles referred by a friend | .06      | .036     |
| Conversations with others               | .04      | .18      |

Importantly, there is one information source that appears to be associated with lower levels of misinformation. There is a statistically significant, negative correlation between the amount of information received from news articles sought out independently and the number of rumors believed. In contrast, however, the more information individuals receive from news articles referred to them by a friend, the more rumors they are likely to believe. The correlations



here are weak, but statistically significant. This pattern could reflect the recent research on spreading fake news articles on social media websites. At minimum, this difference in rumor belief between consuming articles independently and consuming articles from friends underscores the important role that our peers can play in our exposure to misinformation. Finally, the more information one acquires from the radio, however, the more rumors one is likely to believe. This pattern is particularly strong among the conservative rumors and could speak to the influence of conservative talk radio programming.

Next, I build on these results by examining variation in rumor belief across the eight rumors. After asking participants whether they believed each statement was true or false, participants were asked to recall where they learned that the statement was true or false, depending upon their answer.<sup>13</sup> Table 4.5 shows the percentage of participants who were misinformed within each information source category. For example, we see that among individuals who learned about the rumor that Obama was born outside the U.S. from TV, 24.25 percent believed the rumor. The key comparisons, then, are across each row.<sup>14</sup> Looking first at beliefs that Obama was not born in the United States, it appears that individuals were more likely to be misinformed when they learned about the rumor from the radio (48.39 percent) or social sources (40 percent from socially referred newspaper articles, 40.96 percent from conversations with others), compared to those who learned about the rumor from newspaper articles they sought out independently (23.27 percent) or watching TV (24.25 percent). We see a similar pattern for beliefs that Obama is Muslim, but here conversations with others and the radio had the highest concentration of misinformed respondents. The gaps between social sources and more common media sources, such as TV and independently sought newspaper articles are similar to those presented in the

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<sup>13</sup>For example, if a participant reported “False” to the statement “Barack Obama was not born in the United States,” the (properly informed) respondent was then asked: “Where do you recall learning that the statement ‘Barack Obama was not born in the United States is FALSE?’” The response options were the same used to assess the news diet, with the exception of adding an “other” category: television, radio, newspaper article (online or in print) that I sought out on my own, newspaper article (online or in print) that was referred to me by a friend, conversations with other people (online or face to face), and other.

<sup>14</sup>For ease of presentation, Table ?? does not show the percentage of respondents within each information source that did not believe the rumor. This number is simply 100 - the value presented in the table.

CCAP analysis for these two rumors.

**Table 4.5:** Percentage of Respondents within Each Information Source who Believed each Rumor

|   | TV    | Radio | Newspaper | Newspaper (referred) | Conversations | Other |
|---|-------|-------|-----------|----------------------|---------------|-------|
| Barack Obama was not born in the United States                      | 24.25 | 48.39 | 23.27     | 40.00                | 40.96         | 25.40 |
| Barack Obama is Muslim  | 29.72 | 43.90 | 24.48     | 27.14                | 40.43         | 38.36 |
| Death panels are not part of the Affordable Care Act                | 27.54 | 42.55 | 21.31     | 32.69                | 29.63         | 31.58 |
| Global warming is a hoax  | 11.27 | 52.17 | 16.59     | 16.28                | 35.23         | 31.46 |
| The government knew about 9/11 before the attacks                   | 34.50 | 30.95 | 28.67     | 42.19                | 46.72         | 29.87 |
| The flood levee breach during Hurricane Katrina was intentional     | 14.65 | 22.50 | 11.54     | 26.76                | 28.57         | 10.53 |
| The Bush Admin misled the public about the presence of WMDs in Iraq | 73.33 | 51.16 | 78.95     | 62.50                | 65.56         | 54.10 |
| Republicans stole the 2004 election via voter fraud in Ohio         | 31.08 | 23.40 | 19.01     | 32.73                | 32.05         | 6.85  |

Continuing with the remaining conservative-leaning rumors, we see a similar pattern. There were not substantial gaps in misinformation between social and media sources for the death panels rumor. However, if we look specifically at the difference between independently seeking news articles and reading articles referred to us by friends, there is an important distinction. There was more than a 10 percentage point gap in misinformation between those who learned about rumors from articles they sought out on their own (21.31 percent) and those who learned about rumors from articles referred to them by friends (32.69 percent). Finally, there is a tremendous gap in misinformation about global warming between some social and media information sources. Only 11.27 percent of individuals who learned the rumor that global warming is a hoax from TV believed that it was true. In contrast, 35.23 percent of individuals who learned about global warming from conversations with their friends believed that it was a hoax. However, the global warming story is not limited to this dichotomy between the media and our peers. Individuals who learned about the global warming rumor from the radio were most likely to believe that it was a

hoax, with more than half of the respondents who learned about global warming from the radio being misinformed. This likely has much to do with conservative talk radio, however I do not have the data to assess this. Moreover, there are no differences in misinformation about global warming between those who learned about it from newspaper articles they sought out on their own and those who learned about it from socially referred newspaper articles. This stands in contrast to the patterns observed about the rumor that Obama was born outside the U.S. and that death panels were part of the Affordable Care Act.

The liberal-leaning rumors present similar results, but not as consistently. Individuals were most likely to believe that the government knew about the 9/11 attacks in advance if they learned about it from a social source. Specifically 46.72 percent of individuals who learned about this rumor from conversations with others, and 42.19 percent of those who learned about it from newspaper articles referred to them by friends believed it to be true. In contrast, only 28.67 percent of those who learned about the rumor from articles they sought on their own, 30.95 percent of those who learned about it from the radio, and 34.5 percent of those who learned about it on TV believed it to be true. We observe similar gaps in beliefs that the flood levee breach during Hurricane Katrina was intentional. Specifically, 28.57 percent of individuals who learned about this rumor from conversations with others believed it to be true, in contrast to 14.65 percent of individuals who learned about it from TV, 22.5 percent who learned about it from the radio, and 11.54 percent who learned about it from news articles they sought out on their own. Similar to the belief that Obama was born outside the U.S. and that death panels were part of the Affordable Care Act, there is a substantial gap in beliefs about the levee breach between those who read news articles they found on their own (11.54 percent believed) and those who read socially referred news articles (26.76 percent believed).

Individuals were most likely to be misinformed about WMD in Iraq if they learned about it in newspaper articles they sought out on their own (78.95 percent) and on TV (73.33 percent). This rumor stands in sharp contrast to the other seven explored in this study. Here, we observe

that individuals who learned about the rumor from social sources were less likely to believe the rumor than those who learned about it from more traditional sources. This could be due to the question wording, or additional information that has been released since this rumor was initially explored. Finally, there were relatively small differences in misinformation about Republicans stealing the 2004 election via voter fraud in Ohio across the information sources. Individuals who learned about it from TV, newspaper articles referred to them by a friend, and conversations with friends were all equally likely to believe the rumor. Those who learned about the rumor from the radio or news articles they sought on their own were actually less likely to believe the rumor. Notably, similar to beliefs that Obama was born outside the U.S., death panels were part of the Affordable Care Act, that the government knew about the 9/11 attacks in advance, and that the levee breach during Hurricane Katrina was intentional, individuals who learned about the voter fraud rumor from socially referred newspaper articles were substantially more likely to believe the rumor than those who learned about it from articles they sought on their own.

While the patterns are not always consistent across all rumors, it seems difficult to ignore the possibility that our peers play a crucial role in facilitating misinformation. Whether it is simply the correlation between the amount of information one receives from articles referred to them by friends and the number of rumors they believe, or the patterns discussed in Table 4.5, the descriptive evidence presented here is compelling. Overall, it seems that individuals who receive information from news articles referred to them by their friends are more likely to believe rumors than those who receive information from articles they found on their own. Moreover, across several rumors, individuals were more likely to be misinformed if they learned about the rumor from conversations with their friends than if they learned about it from TV or newspaper articles they found independently.

Of course, these descriptive analyses are limited, most importantly by their inability to identify a causal relationship. The results presented in Tables 4.4 - 4.5 do not represent causal relationships between information source and belief in rumors. These patterns could very well

reflect selection bias. Perhaps individuals that opt into learning from their peers are already predisposed toward conspiratorial beliefs than those who opt into learning from media sources. The original survey does not include most of the variables used in the logistic regressions (before and after matching) presented in the CCAP analysis, so addressing this selection concern is challenging. The idea here, instead, was to present a more comprehensive descriptive analysis of beliefs in political rumors by (1) exploring variation across eight rumors; (2) allowing individuals to report their news diets instead of a more limited choice between the media and others; and (3) asking individuals both where they learn about politics, broadly, and directly where they learn about political rumors. These results paired with the CCAP analysis present a strong case for the role of our peers in misinformation.

## **4.6 Discussion**

Does information source impact belief in political misinformation? In this paper, I present preliminary evidence that it does: individuals who rely on socially supplied information are significantly more likely to believe political misinformation than those who rely on the media for political information. This study demonstrates that there are other factors beyond psychological influences on motivated reasoning that can impact an individual's susceptibility to misinformation.

While this preliminary evidence is an important step forward, this study is not without its limitations. First, this study analyzes survey data based on individuals' self-reported information consumption preferences. There could be some social desirability bias leading individuals to over-report how much information they acquire from the media instead of other people. In the CCAP analysis, only about ten percent of the sample reported getting most or all of their information from others, which could make it difficult to make meaningful inferences about them. However, these results are largely similar to those observed using different question wordings in the original survey.

Second, the CCAP analysis is limited in its ability to fully test my theory against previous explanations for misinformation acceptance based on the available survey questions. As discussed in the method section of this paper, I am unable to measure trust and political knowledge in the same way as previous studies. Perhaps more importantly, I am only able to examine belief in two prominent pieces of misinformation, though there are many others that could have been explored. In particular, this study could be improved by examining belief in misinformation favored by Democrats instead of just those favored by Republicans. This is a key reason why I explored beliefs in eight unique rumors in the descriptive analysis using the original dataset.

Third, one of the most important limitations of the CCAP study and the descriptive analysis is that neither can identify a causal relationship. As discussed, individuals get to choose their information sources, thus they are selecting into their “treatment.” This means that differences observed in misinformation acceptance could be driven by unobservable characteristics that are also associated with selection into an information source. In the CCAP analysis, I tried to control for many of these observable characteristics, such as political knowledge and interest, both using a logistic regression and nearest neighbor matching. However, this is not a perfect solution and is far from clean causal identification. Future research could conduct experiments in which individuals are randomly assigned to receive information socially or from a news source. A patient preference trial (Knox, Yamamoto, Baum, and Berinsky 2018; Arceneaux and Johnson 2015; Arceneaux and Johnson 2013) would be the ideal research design here because previous research on information exposure has shown that forced exposure designs can dramatically overestimate treatment effects (Arceneaux and Johnson 2015; Arceneaux, Johnson, and Cryderman 2013).

Fourth, even if there is a strong association between information source and misinformation, the CCAP study cannot establish whether it is through these sources that individuals were exposed to misinformation. The descriptive analysis aims to address this concern in part by asking individuals directly where they learned about the rumor after they reported their beliefs. However, individuals might not be able to accurately remember where they learned something, especially

some of these rumors that were more prominent more than ten years before the data were collected for this study. It is also possible that individuals did not have a preexisting belief about Barack Obama's birthplace or religion, but made their best guess when asked the question on a survey, perhaps influenced by some of the cognitive biases previously discussed, or responded to it as an opinion question. Moreover, as discussed throughout this paper, expressive responding is still an important concern. Future research could use methods outlined by previous researchers to test for expressive responding or survey trolling (e.g. Bullock et al. 2015; Berinsky 2018; Lopez and Hillygus n.d.). In addition, researchers could examine more recent rumors instead of testing those that are older.

## **4.7 Conclusion**

Despite its limitations, this study provides some evidence that information source could impact misinformation acceptance. Previous research has demonstrated that rumors tend to spread socially (Allport and Postman 1947; Lewandowsky et al. 2012), and some individuals rely on others for political information (Ahn, Huckfeldt, and Ryan 2014), yet little work thus far has examined the intersection between political information acquisition and misinformation. Shifting our focus toward how individuals encounter misinformation could shed important light on our understanding of misinformation, including finding ways to counteract misinformation, which has thus far proven to be incredibly difficult.

This paper presents a new theory about misinformation in American politics. The vast majority of research on misinformation has focused so much on the psychological mechanisms explaining why individuals are misinformed and ways to correct misinformation. In so doing, researchers have essentially put the cart before the horse. Without understanding where individuals are learning about political rumors and conspiracy theories, it is difficult to assess how widespread the problem really is and consider possible solutions. There has been limited research examining

the ways in which partisan media can shape the flow of misinformation and recent work examining how individuals were exposed to false content on social media websites. However, the broader point I make in this paper is that we need to also consider the impact that we have on spreading misinformation. Whether we consider the human component in sharing false news articles on social media or around the water cooler, understanding the role that we play in spreading misinformation is important.



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## 5 Conclusion

In this project, I sought to answer two broad questions: (1) How does information change as it flows from the media to others?; and (2) What are the consequences of relying on our peers for information instead of the media? I develop new research designs, largely focused on the telephone-game experiment, to answer these questions. In short, I find that as individuals transmit information from non-partisan news outlets to their peers, the content becomes less precise, more sparse, more likely to contain new information that is sometimes inaccurate, and more biased in favor of the informant's partisan preferences. The way that the information changes has important effects on our attitudes and behavior. Individuals learn less from their peers than they do from the media, unless they turn to individuals who are more knowledgeable copartisans. Individuals also update some of their beliefs in the direction of the informant's preferences. I present suggestive evidence that individuals are more likely to believe political rumors and conspiracy theories when they rely on their peers for information.

### 5.1 Core Contributions

This project makes several important contributions to our understanding of political communication in American politics. Broadly speaking, this is one of the first attempts to examine the *content* of social communication about politics. Seminal research in Communications suggests that we need to consider characteristics of the informant, recipient, and message if we are to understand political learning and attitudes (e.g. Hovland 1948). Excellent research in

political science has explored the characteristics of the informant and recipient, necessarily abstracting away from the content of the message to gain causal identification on the other characteristics (e.g. Ahn, Huckfeldt, and Ryan 2014; Lupia and McCubbins 1998). Outside of social information, research on the media has done more work to understand variation in the message, examining variation in content across news sources, developing methods to measure media bias, and investigating the impact of framing effects and sentiment (e.g. Merolla et al. 2013; Chong and Druckman 2007; Iyengar 1987). In this project, I examine the content of the messages communicated socially, which had not yet been thoroughly tested in the political discussion literature. I also make direct learning, attitudinal, and behavioral comparisons between consuming information from the media and consuming information from a peer, which is a novel contribution to both the political discussion and media effects literatures. In short, the research presented here is able to more fully characterize the two-step flow of political information, using novel research designs and new methods from the text-as-data literature to examine seminal theories.

As discussed, the questions asked and methodological approach taken are both novel. However, the substantive results also introduce important contributions to the literature that pave the way for important theoretical development. First, uncovering that the most common information distortions result from individuals adding information that was not present in the initial article merits further investigation. In contrast to individuals simply relaying or amplifying biased information from the news — which they do (Druckman, Levendusky, and McLain 2018; Carlson 2019) — individuals are supplementing that information with their own opinions and mobilizing calls to action. This introduces a possible mechanism through which misinformation might be spreading, as discussed in Chapter 4, as well as a mechanism through which political discussions might have a mobilizing effect. Previous research demonstrating the mobilizing effect of political discussions suggests that it could be selection, as those most engaged are also most likely to discuss politics in the first place. It could also be that discussing politics with peers



creates social pressure for the less engaged to participate. The research presented here suggests that there is more to consider. The actual content of the information could be mobilizing in and of itself.

The implications of the changing content for learning are also important to consider. In Chapter 3, I show that individuals are able to learn the same amount of information about economic performance from their more knowledgeable, like-minded peers as they would otherwise learn from a news article. These findings are consistent with seminal research on the two-step flow, suggesting that our peers can be a valuable information shortcut if they are more knowledgeable and share our preferences (e.g. Lupia and McCubbins 1998). However, by directly comparing learning from our peers to the media, I uncover just how important it is to turn to individuals who meet these criteria. Receiving information from someone who was less knowledgeable and from a different party resulted in no learning at all. This is especially important given that we prefer to avoid discussing politics with individuals who are more knowledgeable than we are, as Jaime Settle and I show in a working book manuscript. That individuals could be learning fewer facts (as I show in Chapter 3), but more misinformation (as I show in Chapter 4) raises important considerations for the true value of relying on our peers for information.

## **5.2 Future Research**

In the beginning of this project, I outlined an argument that points to additional hidden consequences of social information that I did not test empirically in the chapters presented here. I argued that social information was less likely to affect vote choice in electoral contexts in which other heuristics, such as party identification, were available. The idea here is that we know from extant research on heuristics that individuals, even with low levels of information, are able to vote in line with their interests if they rely upon heuristics. This suggests that even if information becomes distorted through social transmission, it would have to somehow distort information

about a heuristic, such as misinforming someone about a candidate's party identification, or be outrageously inaccurate to overcome the heuristic. However, in non-partisan or single-party electoral contexts, such as some municipal or primary elections, prominent cues might not be available and social information could bias our perceptions and affect vote choice.

The second key component of my argument that I do not test empirically is that social information has a mobilizing effect. In Chapter 1, I argued that when individuals transmit information from the news to their peers, they inject that information with mobilizing calls to action. Instead of simply relaying facts, they make suggestions about how to act upon that information through voting, seeking additional information, or protesting, for example. This mobilizing content that is absent in information directly from the news, paired with the mobilizing effects of social contact, can lead individuals who receive information from their peers to be more likely to engage in politics.

In my future research agenda, I aim to empirically investigate these two dangling consequences of social information. First considering vote choice, I have preliminary evidence from the 2016 Cooperative Campaign Analysis Project (CCAP) survey that individuals who rely on social information are no less likely to “vote correctly” (Lau, Anderson, and Redlawsk 2008) in the 2016 presidential election than those who receive information from the news. Future research in this area will include investigating voting behavior in primary elections, in incentivized lab experiments, and on ballot initiatives.

Second, I will consider the mobilizing effect of social information in a few ways. First, I will compare text from news articles to the text from socially generated summaries of those articles to estimate the relative amount of mobilizing content in each. I plan to do this both with data from the experiments presented in this project, as well as observational data from Facebook and Twitter, comparing the text of the news article previews to the text of the social commentary included when someone shared the article (see Anspach and Carlson 2019). As a reference point, I can also compare news and social text to text from campaign communications that are

explicitly designed to mobilize individuals to the political action. Following nicely from this idea, I also conducted a telephone-game experiment focused on mobilization on the 2018 Cooperative Congressional Elections Study. Instead of examining how individuals transmit information from news articles, as I do throughout this project, I investigate how individuals transmit information from Get Out the Vote (GOTV) postcards.

In addition to examining the mobilizing content of socially generated information, I aim to investigate behavioral outcomes in response to social information relative to information from news articles. Specifically, I aim to examine voting behavior in low-salience elections, campaign contribution behavior, and information-seeking behavior. I have self-reported survey data on these behaviors, but preliminary evidence suggests minimal differences in self-reported engagement based on the informational treatment individuals received (either a news article or a socially-generated summary of that article). However, in future research, I can examine direct engagement in these behaviors using voter-file, campaign contribution disclosures, and web-tracking data.

Through all of this research there are still a few central empirical limitations that I hope to address with additional research designs. First, these studies do not allow the recipients of social information to respond to the informants. This one-way communication differs from communication in the real world and makes it difficult to assess the possibility that recipients could ask for more information or even correct inaccuracies communicated to them by their peers. I hope to allow for two-way communication as I develop this project further, perhaps applying innovative methods developed by Rossiter (2019). Relatedly, this research does not include face-to-face discussions, which we can imagine to be very different from the one-way online information transmission used in these studies. Future research could also utilize group lab experiments in which individuals participate in a discussion (e.g. Druckman, Levendusky, and McLain 2018; Carlson and Settle 2016). The key here would be to record the conversations and analyze both the transcripts and the audio (e.g. Dietrich, Hayes, and O'Brien 2019; Knox and

Lucas 2018).

Second, the experiments presented in this project do not account for real social relationships. Individuals wrote information to strangers — even if they were asked to imagine a real person in their networks — and received information from strangers, only knowing their partisanship and which news article they read, in some cases. However, in the real world, we generally know the people with whom we communicate about politics. As Jaime Settle and I show in our working book manuscript, individuals use a variety of cues about a person to determine their comfort level engaging in a political discussion with them. These cues then shape how one approaches a discussion and we can imagine that it might also impact the extent to which we trust information that they share with us. The point here is that when we are learning about politics from our peers in the real world, we might be better equipped to determine whether each person is a credible source than when we interact with a stranger in an experiment. However, we might also be more likely to overestimate the political knowledge of our peers (Ryan 2011) or trust our close friends without merit. As this line of research continues, it will be important to consider how information exchanged within real social networks differs from that uncovered in these experiments.

### **5.3 Why should we care?**

I opened this project with a quote from Thomas Jefferson in which he notes that those who read the newspaper are less informed than those who do not. The research presented in this project should make us skeptical of his argument, but not entirely dismiss it. I have shown that if we compare individuals who consume nonpartisan, factually accurate media to those who consume someone else’s summary of that information, we see that the news-consumers were able to learn more overall and were less likely to believe misinformation. However, our information environment today is plagued by news (or “news”) articles that are either partisan, factually

inaccurate, or both. The implications from this research and the future work it inspires extend far beyond variation in learning from an objective news article or someone's summary of that article. The implications extend beyond our understanding of partisan news effects. This project has enormous implications for understanding the political information environment today, which includes fake news, bots, rumors, conspiracy theories, tweets, aggressive political conversations, and other features that lead us to question how we are able to find valuable information.

If we consider Thomas Jefferson's argument to apply to news sources more broadly than just the newspaper, his argument might be even more relevant today. If individuals today have a difficult time separating fact from fiction, some of the patterns reflecting the human role in misinformation might become amplified. In this case, individuals who read the "news" might indeed be less informed than those who do not, as Jefferson suggested, but the problem here is that there is virtually nothing stopping them from communicating the "facts" that they learned to others. Moreover, if we pair the psychological mechanisms associated with belief in misinformation and fake news with the two-step flow, we see a very grim picture of what our reality might be. The very individuals who make good opinion leaders — those who are more knowledgeable than we are and share our partisan preferences — are those most likely to spread misinformation to us that we are also more likely to believe!

Individuals who are more interested in and knowledgeable about politics are more likely to believe political rumors (Miller, Saunders, and Farhart 2015) and are more resistant to corrections (Nyhan and Reifler 2010). My work in this project also shows that those most interested in politics are most likely to distort information by injecting their own opinions in place of facts as they pass it on to their peers. If the most knowledgeable are also the most motivated reasoners, they might be less willing to question information that is actually false, and pass that information on to their peers intentionally or unintentionally. Then, because individuals who rely on their peers for information instead of the news do so because they consider them to be more objective and more trustworthy, they could be more likely to believe that false information.

If we are to understand the informational landscape in which we live today, we must consider the human component. These are the pressing issues to which my research speaks. The research presented in this project, as well as the future research that it initiates, can go a long way toward helping us understand, and hopefully address, the (mis)information problem we currently face. This project only scratches the surface in understanding how the two-step flow has been changed with the explosion of fake news in the wake of the 2016 election. But, the overarching argument and evidence presented thus far challenge scholars, practitioners, and the public more broadly to carefully (re)consider where we learn about politics.

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