







# Social Media Use, Political Polarization, and Social Capital: Is Social Media Tearing the U.S. Apart?

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**Abstract.** While some polarization is potentially beneficial for democracy, hyper-polarization can lead to political gridlock, tribalism, and even physical violence. Given the gravity of these concerns, we use data from 1,424 residents of Virginia, USA to investigate if media exposure is related to polarization. We explore if getting news from traditional media (e.g. television, radio, newspapers) or social media (e.g. Facebook, Twitter, news aggregators) predicts the likelihood of being polarized. Results reveal stark differences between liberals and conservatives. Polarized conservatives use radio talk shows and television for their news while polarized liberals are likely to get their news from newspapers, television, and various social media outlets. We then investigate if polarization influences social capital. We find that polarized conservatives express low levels of bridging capital while polarized liberals are more likely to express high levels of bonding capital. Media consumption also influences bridging and bonding capital. We also find that while being polarized does not predict civic engagement, media consumption does. We consider these results disturbing. At least among the political extremes, conservatives and liberals are informed by different sources. This lack of a shared information results in competing worldviews while providing little opportunity for finding common ground. This combination of high bonding, low bridging capital can explain the recent increase in “lethal partisanship” where groups not only disagree but also accept or even wish harm to their political opponents.

**Keywords:** Polarization · Social media · News sources · Social capital

## 1 Introduction

A group of foreign policy opinion leaders from government, think tanks, academia, the media, business, religious organizations, and NGOs cited political polarization as the most critical threat to the national security of the United States [1]. These experts fear that polarization is eroding the nation’s international standing and weakening its ability to lead efforts to confront global challenges. While some polarization is potentially beneficial for democracy, hyper-polarization often leads to political gridlock, tribalism, and the erosion of social capital. Polarization, so it is argued, rips at the fabric of society

and leads to a culture war, and hyper-polarization can result in social destabilization, civil unrest, and even physical violence.

Given the gravity of these concerns, it is important for us to ask what potentially leads to polarization. This research is designed to address this question by examining the relationship between media use and polarization and the relationship between political polarization and various forms of social capital. We begin by briefly considering polarization and its threats in the United States and cross-nationally. We then briefly review the relationship between media consumption and polarization, noting the potential role of “filter bubbles” or “echo chambers.” We then discuss the theoretical link between polarization and social capital. After this discussion, we use data from 1,424 residents of Virginia, USA to investigate if media exposure increases polarization. Specifically, we explore if getting news from traditional media sources (e.g. television, radio, newspapers) or social media sources (e.g. Facebook, Twitter, news aggregators) influences the likelihood of being polarized. We then turn to an analysis of the relationship between polarization and various forms of social capital and conclude by considering the implications of our research.

## 2 Literature Review

### 2.1 Polarization: Its Threats and Trends

Polarization is “a process whereby the normal multiplicity of differences in a society increasingly align along a single dimension, cross-cutting differences become instead reinforcing, and people increasingly perceive and describe politics and society in terms of “Us” versus “Them” [2]”. Even in cases where the extent of polarization is not extreme, it can lead to political gridlock [3, 4]. Taken to its extremes, polarization can lead to “lethal partisanship” where those on opposing sides rationalize harming their opponents, feel less restrained about harming their opponents, and feel less sympathy when their opponents are harmed or killed [5].

Noting the dangers of hyper-polarization, sociologists have worried about and tracked trends in polarization for some time [6–8]. The evidence suggests that polarization is increasing rather dramatically in the United States. For example, according to the Pew Research Center’s tracking of the values of the American public since 1994, political values are becoming more ideologically consistent and more strongly associated with partisanship. Overall, across 10 measures tracked by Pew, the average partisan gap increased from 15% points to 36% points between 1994 and 2017 [9]. Moreover, unlike in the past when political gaps were mostly based on education, religious attendance, gender, or race, the largest gap in values is now between political parties [9].

This hyper-polarization is occurring not only in the United States, but it is also evident in many nations. The rise of the hyper-nationalist Law and Justice (PiS) party in Poland reflects how Poland is now one of the most polarized societies in Europe [10, 11]. Similarly, the far-left Syriza party’s victory in Greece, the rise of Podemos in Spain, and the increasing shift toward rightwing politics in Austria, Germany, and the Czech Republic all demonstrate the growing levels of polarization in these nations [11–13]. The support for Brexit in England and the strong electoral performance of Le Pen’s far-right National Front in France, like the election of Donald Trump in the United States, also

reveal the rise of partisan populism and the polarization related to such populism [13]. Similar trends in political polarization have also been observed in Latin America, South Asia, and East Asia [14–17]. In short, polarization appears to be increasing around the globe.

## 2.2 Polarization and the Media

With respect to the relationship between media consumption and polarization, popular wisdom, mainstream media, and numerous scholars argue that social networking sites (SNS) such as Facebook and Twitter and online media sources such as news aggregators are driving polarization [18–21]. The 2016 U.S. elections and the use of bots to spread “fake news” and incite cultural debates are oft cited examples. Similarly, the rise of online “echo-chambers” or “filter bubbles” are also considered mechanisms by which social media contributes to polarization. The personalization of SNS refines users’ profiles to narrow the range of information they see, thereby reflecting their ideology and interests. The result of this personalization shrinks users’ social networks and exposure to competing information and alternative worldviews [18, 22, 23]. As this occurs, users develop online connections with likeminded people because people’s friendship networks tend to include those with similar habits, lifestyles, and cultural worldviews [24, 25]. This limiting of one’s online networks to include mostly those who share similar political views can lead people to believe their views are more widely held than they actually are and to discount those who disagree with them as being “out of touch” with what their network comes to know as “the truth” [22, 23].

There is evidence that suggests such echo chambers or filter bubbles do contribute to polarization [19–21, 26, 27]. For example, Bail and his colleagues [19] conducted a field experiment where participants followed bots that retweeted messages from political leaders and elected officials who held opposing political views. They found conservative participants became more conservative after following liberal bots, although the effect was not significant for liberal participants. Similarly, evidence suggests the network of political retweets are highly partisan and exhibit extremely limited connectivity between liberal- and conservative-leaning users [21]. In a different yet related line of research, Hong and Kim [20] found strong polarization when they analyzed the Twitter readership of members of the U.S. House of Representatives.

Although there is evidence that suggests social media can contribute to political polarization, an alternative “crosscutting interactions perspective” [19] argues that the openness of the Internet and social media allows for a variety of different opinions to be accessed and considered. As such, the use of SNS would not necessarily lead to polarization, and, in fact, could potentially increase political tolerance by allowing users to interact with and learn from those holding different political opinions. Because social media platforms facilitate interactions among individuals with weak ties who hold more politically heterogeneous perspectives than those in an individual’s primary networks, SNS use can actually increase political moderation instead of extremism [19]. There is also evidence supporting this position [19, 28–30]. For example, using a panel design to track the ideological composition of social media users’ online networks in Germany, Spain, and the United States, Barberá, [29] found most social media users to be embedded in ideologically diverse networks and this diversity was positively correlated

with political moderation. It is also noteworthy that political polarization has increased the most among the demographic groups who are least likely to use social media, thereby calling into question the overall claim that frequent SNS use leads to polarization [30]. At the least, this insight suggests that even if social media use is contributing to polarization, something other than SNS use is also driving the heightened levels of polarization.

One such additional driver of polarization is the increased political bias found in traditional forms of media such as newspapers and television news. Indeed, some scholars argue that these sources of media may have a far greater effect than social media on polarization [31–33]. Although most empirical findings consistently suggest that large, traditional media outlets in the United States express politically centrist views, some talk radio shows and cable news channels offer more ideologically extreme political opinions and presentations of news [33–35]. This finding can help account for increasing polarization among those groups who are not avid social media users. For example, Morris [32] finds that the network news audience is increasingly older Americans, and that the Fox News and CNN audiences are becoming increasingly polarized.

Consequently, there is evidence that both traditional and newer forms of media can contribute to polarization. Yet, polarization may not be as problematic as some suggest. Although hyper-polarization can lead to gridlock and even lethal partisanship, it can also simplify choices for voters [2] and stimulate political participation [2, 32, 36, 37]. Thus, it is necessary to consider when polarization moves from being socially healthy to socially dangerous. To help assess the possible dangers of polarization, we now consider the relationship between polarization and social capital.

### 2.3 Polarization and Social Capital

Polarization can potentially be dangerous because it can influence social capital in socially unhealthy ways. Social capital consists of networks where those interacting share norms of reciprocity and trust that facilitate cooperation [38]. Researchers have identified two distinct forms of social capital: bonding capital and bridging capital [38, 39]. Bonding capital is the trust of specific others, such as friends, co-workers, and neighbors. Conversely, bridging capital extends beyond one's immediate social circles to others with whom one has no direct ties or few personal connections. Bonding capital is personal, requires intimate contacts, and holds people together in groups. It is the "social glue" that keeps a community together, and it is similar to what Granovetter calls "strong ties." Conversely, bridging capital connects people across diverse groups and is similar to Granovetter's "weak ties" [40, 41]. In addition, civic engagement is a fundamental dimension of social capital as it is how communities accomplish important goals [39].

The language of social capital theory can help explain polarization and its potential threats to society. In short, polarization occurs when groups with high levels of bonding capital are not connected to each other through bridging capital. A tightly bonded yet unbridged group tends to become increasingly insular and disconnected from other groups. As this occurs, it becomes more homogeneous, and homogeneity in interactions tend to sustain consistency and definiteness in one's orientation and worldview [42–45]. Moreover, as relations with other groups become less frequent, inter-group differences and feelings of distrust increase. In short, research from a variety of settings shows that

involvement in like-minded groups amplifies the ideological tendencies of the group, diminishes opinion diversity, and creates greater distance between ideological opponents. Conversely, as Allport's [46] contact theory suggests when multiple groups who hold diverse worldviews and have access to varied forms of information are connected, distinctions between the groups become increasingly blurred. That is, the intra-group consistency and definiteness of values decreases while inter-group differences decrease [43, 44, 46, 47]. Thus, polarization occurs when strongly bonded groups lack bridging capital; it lessens when clustered networks are linked through bridging capital or "weak ties." Moreover, as a process, as interactions become less frequent between groups and intra-group homogeneity increases, the mistrust that typically develops between groups can destroy any bridging capital that did exist and limit the creation of new bridges that could link the groups. Thus, the process can create a feedback loop that leads to hyper-polarization.

The potential dangers associated with groups being highly bonded yet unconnected to others in the dominant social order is evident in literature on gangs, organized crime syndicates, terrorist organizations, and studies of genocide [48–50]. Not only do such conditions lead to "othering" and "lethal partisanship" known to be correlated with violence towards one's rivals, but these conditions also reduce the ability to find mutually acceptable resolutions to conflicts [51]. Thus, polarization becomes dangerous not when groups disagree; it is dangerous when groups disagree but do not interact!

Media consumption can affect both bonding and bridging capital. While non-partisan media would likely promote bridging capital among groups by creating common symbols that link them, media that celebrates in-group similarities while simultaneously highlighting out-group differences would likely promote high levels of bonding capital within various groups while decreasing bridging capital among them. Given that highly bonded, clustered networks that lack bridging capital are difficult to integrate into larger social discussions [41, 42], if opposing groups consume different media that present radically different versions of events, they are likely to become increasingly internally bonded but externally disconnected. This combination of high-bonding/low-bridging capital can further fuel polarization. If this polarization process remains unchecked and becomes extreme, it can lead to "lethal partisanship" [5], which can be a highly volatile and dangerous situation [23].

Given the above discussion, we ask: (1) Does exposure to traditional media sources or social media predict political polarization, and (2) Do political polarization and media consumption predict levels of social capital? We now turn to our analyses.

### 3 Methods

We begin by using a binomial logistic regression analysis to predict if respondents are political polarized liberally or conservatively. We then investigate if polarization and media consumption predicts levels of bonding and bridging capital. We then regress political participation on political polarization and media consumption.

#### 3.1 Sample

Our analyses are conducted on a sample of 1,424 adult residents of the Commonwealth of Virginia, USA. Data were collected using an online survey between March 7 and March 16, 2019. The sample was selected from demographically balanced panels of potential respondents who had previously volunteered to participate in research surveys. *Dynata*, the world's largest first-party data platform, administers the panels, and they recruit potential participants through a number of permission-based techniques, including random digit dialing and banner ads. *Dynata* sent email invitations to a sample of panel members stratified to reflect the adult population of Virginia, and the sample is within the expected margin of error in terms of important demographic characteristics such as race, ethnicity, and gender.

The sample was collected as part of a project funded by the National Science Foundation. This study was designed in part to analyze social media use, and these data are to supplement those data once they are collected. As such, the survey was limited to residents living in the three largest metropolitan statistical areas in Virginia (Greater Washington, Hampton Roads, and Richmond statistical areas). Over 80% of the Commonwealth's population live in these areas; however, this sampling strategy restricts our analysis to those living in larger urbanized areas and therefore is a limitation of our research.

#### 3.2 Measures

**Political Polarization.** We use Pew Research Center's measure of political polarization [9]. Respondents indicate which statement comes the closest to their view on a series of political issues. These items are presented in Table 1. Responses in the left column are considered "conservative," and those in the right column are "liberal." The presentation of these positions to respondents is randomized. To construct the measures of polarization, responses are coded as  $-1$  if the liberal response is selected and  $+1$  if the conservative response is selected, and the ten items are summed. Respondents who answer liberally to seven or more items (e.g.  $\text{sum} < -7$ ) are coded as "polarized liberal." Respondents who answer conservatively to seven or more items conservatively (e.g.  $\text{sum} > 7$ ) are coded as "polarized conservative."

**Table 1.** PEW political polarization questions.

Which statement comes the closest to your view?		
Government is almost always wasteful and inefficient	OR	Government often does a better job than people give it credit for
Stricter environmental laws and regulations cost too many jobs and hurt the economy	OR	Stricter environmental laws and regulations are worth the cost
Homosexuality should be discouraged by society	OR	Homosexuality should be accepted by society
Government regulation of business usually does more harm than good	OR	Government regulation of business is necessary to protect the public interest
Poor people today have it easy because they can get government benefits without doing anything in return	OR	Poor people have hard lives because government benefits don't go far enough to help them live decently
The government today can't afford to do much more to help the needy	OR	The government should do more to help needy Americans, even if it means going deeper into debt
Blacks who can't get ahead in this country are mostly responsible for their own condition	OR	Racial discrimination is the main reason why many black people can't get ahead these days
Immigrants today are a burden on our country because they take our jobs, housing and health care	OR	Immigrants today strengthen our country because of their hard work and talents
The best way to ensure peace is through military strength	OR	Good diplomacy is the best way to ensure peace

**Media Use.** Respondents were asked from what media sources they got news during the week prior to completing the survey. The sources available for them to select included television, the Internet, the radio, or print, and they could select from none of these to all of these. Depending on the respondent's selected options, she or he was then asked to specify specific sources within the general media type. Thus, those who indicated they received news from the television were asked to specify from which station or stations they received news, those who specified the radio were asked to identify the type of radio broadcast, etc.

The television stations that could be selected included the major television news stations available in the U.S. (FOX, CNN, ABC, NBC, CBS, PBS, BBC), the respondent's local news station, and the possibility of some other television station. Each of these were coded as 0 (did not receive news from this station) or 1 (received news from this station). A similar strategy was used for radio, print, and Internet sources. The possible choices for radio included a talk show, a news show, or a radio station that is mostly devoted to music or sports but includes news segments. Print choices included the respondent's local newspaper, the New York Times, the Washington Post, USA Today, the Wall Street Journal, the National Inquirer, and a news weekly such as Time or Newsweek. Internet sources included a news aggregator such as Google News or Smart News; news websites

such as MSN, CNN, or Fox; Facebook; Twitter; YouTube or a similar service; Reddit; or some other Internet source.

**Social Capital.** We include measures of bridging and bonding capital, and we operate in the tradition of measuring social capital as various forms of trust [52]. *Bridging capital* is measured with a single item. Respondents were asked, “Generally speaking, would you say that most people can be trusted or that you can’t be too careful in dealing with people,” and the response “you can’t be too careful” was coded as 0 and the response “people can be trusted” was coded as 1. *Bonding capital* was measured with an index of four, four-point Likert items that asked about the level of trust respondents had for people in their neighborhood, the police in their neighborhood, people work in the stores where you shop, and people who are of a similar race to you. Responses ranged from (1) trust not at all to (4) trust a lot. The index had a Cronbach’s alpha of .808. *Civic engagement* was measured using an indicator of eight items asking if respondents did any of the following: worked on a community project; attended a public meeting to discuss town affairs; attended a political meeting or rally; participated in a political group; participated in demonstrations, boycotts, or marches; participated in a charity; participated in a religious group; and participated in a club or organization unrelated to their work. Responses for each item were coded as 0 or 1. The index had a Cronbach’s alpha of .775.

**Control Variables.** We also control for a number of factors known to be correlated with political involvement, social capital, and media use. Age was measured continuously. Income was measured as an ordinal variable with five categories (under \$30,000; between \$30,000 and \$50,000; between \$50,000 and \$75,000; between \$75,000 and \$100,000; and over \$100,000). Education was measured with the question “what was the highest grade of school or year of college you have completed,” and responses ranged from less than high school to a graduate or professional degree. Religiosity was measured using a 5-point Likert scale asking how frequently the respondent attended religious services (1 = never, 5 = every week or more). Respondents were also asked, “How much do you enjoy talking about government and politics with friends and family.” This item was a 4-point Likert scale ranging from 1 “not at all” to 4 “a lot.” We also included indicator variables for sex (male = 1), race (white = 1), and citizenship status (citizen = 1).

## 4 Results

Univariate statistics for all variables used in the analysis are reported in the appendix. Due to space considerations, traditional media sources that were unrelated to any form of polarization or social capital are excluded from the analyses, but we retain all of the measured social media sources because of theoretic interests. Comparisons of the more parsimonious models and the full models confirm that eliminating these variables from the model did not result in any substantive changes to the results. As such, only the trimmed models are presented. Complete results of all analyses that include all media sources are available from the corresponding author.



### 4.1 Polarization

We begin with two logistic regression models predicting if respondents are polarized liberally or conservatively. We are interested in the relationship between the use of various forms of media to receive news and polarization, and we investigate these relationships while controlling for factors known to be related to political engagement because those interested in politics are more likely to be politically polarized [2]. The results of these models are presented in Table 2.

**Table 2.** Logistic regression of liberal and conservative polarization on media use

	Polarized liberally			Polarized conservatively		
	B	S. E.	Odds ratio	B	S.E.	Odds ratio
News from CNN	<b>.453</b>	<b>.161</b>	<b>1.57</b>	<b>-1.339</b>	<b>.335</b>	<b>0.26</b>
News from FOX	<b>-1.61</b>	<b>.209</b>	<b>0.20</b>	<b>1.414</b>	<b>.221</b>	<b>4.11</b>
News from BBC	.171	.246	1.19	-.109	.400	0.89
Local TV news	-.069	.176	0.93	-.181	.268	0.83
Radio talk show news	-.337	.228	0.71	<b>1.046</b>	<b>.251</b>	<b>2.85</b>
Local paper news	-.176	.175	0.83	.046	.253	1.05
New York Times	<b>.671</b>	<b>.242</b>	<b>1.96</b>	-.686	.661	0.50
Washington Post	<b>.821</b>	<b>.177</b>	<b>2.27</b>	<b>-1.033</b>	<b>.359</b>	<b>0.36</b>
A news aggregator	<b>.354</b>	<b>.155</b>	<b>1.43</b>	.017	.249	1.02
Netnews (e.g. MSN)	.106	.146	1.11	-.160	.232	0.85
News from Facebook	<b>-.544</b>	<b>.188</b>	<b>0.58</b>	-.040	.279	0.96
News from Youtube	<b>-.490</b>	<b>.280</b>	<b>0.61</b>	-.121	.524	0.89
News from Twitter	-.010	.259	0.99	-.259	.457	0.77
News from Reddit	<b>.899</b>	<b>.318</b>	<b>2.46</b>	-1.467	1.091	0.23
White	-.194	.168	0.82	<b>1.057</b>	<b>.337</b>	<b>2.88</b>
U.S. Citizen	.132	.438	1.14	1.27	1.13	3.56
Male	<b>-.614</b>	<b>.146</b>	<b>0.54</b>	<b>.604</b>	<b>.229</b>	<b>1.83</b>
Religiosity	<b>-.082</b>	<b>.038</b>	<b>0.92</b>	<b>.269</b>	<b>.057</b>	<b>1.31</b>
Education	<b>.213</b>	<b>.056</b>	<b>1.24</b>	<b>-.179</b>	<b>.086</b>	<b>0.84</b>
Enjoy politics	<b>.279</b>	<b>.077</b>	<b>1.32</b>	<b>.566</b>	<b>.123</b>	<b>1.76</b>
Income (in \$10,000 s)	-.002	.021	1.00	<b>.089</b>	<b>.033</b>	<b>1.09</b>
Age	.001	.005	1.00	.008	.007	1.01
Constant	<b>-2.32</b>	<b>.527</b>	<b>0.10</b>	<b>-7.65</b>	<b>1.29</b>	<b>.0004</b>
-2 Log Likelihood	1365.9			639.2		
Nagelkerke R <sup>2</sup>	.264			.319		

Bolded = p < .05

As seen in Table 2 for the liberally polarized model, those who get their news from CNN are 57% more likely to be liberally polarized (odds ratio = 1.57), while those who watch FOX news are five times less likely to be liberally polarized (OR = 0.20). There are also strong relationships between getting one's news from the New York Times (OR = 1.96) and the Washington Post (OR = 2.27) and being liberally polarized. In terms of social media sources, those who are liberally polarized are more likely to get their news from a news aggregator (OR = 1.43) and Reddit (OR = 2.46), but they are less likely to get news from Facebook (OR = .58) or YouTube (OR = .61). A number of other variables are related to being liberally polarized as expected. For example, males and the more religious are less likely to be liberally polarized. Conversely, education and liking politics are positively related to liberal polarization. Race, age, income and citizenship status were not particularly strong predictors of liberal polarization.

Looking at the model for polarized conservatives, it is clear that they tend to get news from FOX (OR = 4.11) and radio talk shows (OR = 2.85), and they are very unlikely to get their news from CNN (OR = 0.26) or the Washington Post (OR = 0.36). None of the social media sources are good predictors of being conservatively polarized, although all of the effects except for a news aggregator (which is virtually no effect) indicate polarized conservatives do not use these as news sources. For example, the odds ratio for Reddit, while not statistically significant by conventional standards, is nevertheless noteworthy (OR = .23). The other variables in the model are related to conservative polarization as expected with Whites, males, the religious, those with higher incomes, and those who enjoy politics being more likely to be polarized in a conservative manner. U.S. citizens are also more likely to be polarized conservatively, although the effect is not significant by conventional standards, the odds ratio of 3.56 is noteworthy. One likely reason that the effect did not achieve statistical significance is because approximately 96% of the sample were U.S. citizens. Education is inversely related to conservative polarization.

## 4.2 Social Capital

Turning to the question of whether media consumption and polarization influence social capital, we first conduct a logistic regression on generalized trust, which is our measure of bridging capital. We then conduct two ordinary least squares regressions. The first investigates the relationship between bonding capital, polarization, and media use. The second model regresses civic engagement on our polarization, media, and control variables. The results are presented in Table 3.

We see in Table 3 that those who are polarized conservatively tend to express lower levels of bridging capital (OR = 0.63) while those who are polarized liberally report higher levels of bridging capital (OR = 1.25), although the latter effect is not statistically significant using conventional standards. In terms of media effects, the only traditional media source that is a significant predictor of bridging capital is receiving news from a local T.V. station (OR = 0.67). Social media sources, however, do appear to be good predictors of bridging capital. Those who receive news from a news aggregator are 39% more likely to express high levels of bridging capital (OR = 1.39), but those who receive news from Facebook (OR = 0.74) and Reddit (OR = 0.31) are more likely to report low

levels of bridging capital. Whites, males, the religious, those with more education, and those who enjoy discussing politics all express higher levels of bridging capital than do their counterparts.

**Table 3.** Logistic regression of bridging capital on polarization and media use

	Bridging capital		
	B	S. E.	Odds ratio
Polarized Liberal	.219	.143	1.25
Polarized Conservative	<b>-.460</b>	<b>.217</b>	<b>0.63</b>
News from CNN	.172	.140	1.19
News from FOX	-.063	.137	0.94
BBC News	-.183	.207	0.83
Local TV news	<b>-.408</b>	<b>.147</b>	<b>0.67</b>
Radio talk show news	-.218	.177	0.80
Local paper news	.099	.143	1.10
New York Times	.095	.230	1.10
Washington Post	.203	.160	1.23
A news aggregator	<b>.330</b>	<b>.135</b>	<b>1.39</b>
Netnews (e.g. MSN)	-.167	.124	0.85
News from Facebook	<b>-.295</b>	<b>.151</b>	<b>0.74</b>
News from Youtube	.306	.227	1.36
News from Twitter	-.174	.226	0.84
News from Reddit	<b>-1.177</b>	<b>.352</b>	<b>0.31</b>
White	<b>.698</b>	<b>.149</b>	<b>2.01</b>
U.S. Citizen	-.447	.359	0.64
Male	<b>.274</b>	<b>.121</b>	<b>1.32</b>
Religiosity	<b>.106</b>	<b>.032</b>	<b>1.11</b>
Education	<b>.108</b>	<b>.046</b>	<b>1.12</b>
Enjoy politics	<b>.327</b>	<b>.065</b>	<b>1.39</b>
Income (in \$10,000 s)	.026	.017	1.03
Age	.002	.004	1.00
Constant	<b>-2.33</b>	<b>.440</b>	<b>0.10</b>
-2 Log Likelihood	1800.5		
Nagelkerke R <sup>2</sup>	.146		

Bolded =  $p < .05$

Table 4 reports the OLS regression results for both bonding capital and civic engagement. Being polarized liberally is associated with elevated levels of bonding capital ( $b = .362$ ) while being polarized conservatively is largely unrelated to bonding capital ( $b = -.013$ ). In terms of media effects, getting news from a local paper ( $b = .500$ ) and YouTube ( $b = .502$ ) are positively related to bonding capital, while getting news

**Table 4.** Regression of bonding capital and civic engagement on polarization and media use

	Bonding capital				Civic engagement			
	B	S. E.	T	Beta	B	S. E.	T	Beta
Polarized left	<b>.362</b>	<b>.143</b>	<b>2.52</b>	<b>.065</b>	-.011	.131	-0.09	-.002
Polarized right	-.013	.217	-.059	-.001	-.173	.198	-0.87	-.022
CNN	.148	.139	1.06	.027	-.022	.128	-0.17	-.004
FOX	.135	.136	0.99	.025	.028	.125	0.22	.006
BBC News	-.276	.209	-1.32	-.033	<b>.484</b>	<b>.191</b>	<b>2.54</b>	<b>.063</b>
Local TV news	.100	.144	0.69	.017	-.085	.132	-0.65	-.016
Radio talk show	-.100	.176	-0.57	-.014	.239	.160	1.49	.036
Local paper	<b>.500</b>	<b>.145</b>	<b>3.45</b>	<b>.089</b>	<b>.349</b>	<b>.132</b>	<b>2.63</b>	<b>.068</b>
New York Times	-.152	.233	-0.65	-.017	.327	.212	1.53	.040
Washington Post	.109	.164	0.69	.019	<b>.484</b>	<b>.150</b>	<b>3.22</b>	<b>.090</b>
News aggregator	.185	.135	1.37	.034	<b>.243</b>	<b>.123</b>	<b>1.98</b>	<b>.049</b>
Net News	-.026	.124	-0.23	-.005	-.132	.113	-1.17	-.029
Facebook	.145	.146	0.99	.024	.218	.133	1.63	.040
Youtube	<b>.502</b>	<b>.221</b>	<b>2.27</b>	<b>.057</b>	.294	.203	1.45	.037
Twitter	.130	.215	0.61	.015	.238	.197	1.21	.030
Reddit	<b>-.610</b>	<b>.296</b>	<b>-2.06</b>	<b>-.052</b>	-.108	.267	-0.40	-.010
White	<b>1.213</b>	<b>.142</b>	<b>8.53</b>	<b>.225</b>	-.034	.130	-0.26	-.007
U.S. Citizen	-.632	.360	-1.76	-.042	-.144	.325	-0.44	-.011
Male	<b>-.256</b>	<b>.120</b>	<b>-2.14</b>	<b>-.053</b>	.145	.109	1.32	.033
Religiosity	<b>.164</b>	<b>.031</b>	<b>5.26</b>	<b>.128</b>	<b>.388</b>	<b>.029</b>	<b>13.58</b>	<b>.333</b>
Education	.078	.046	1.68	.046	<b>.097</b>	<b>.042</b>	<b>2.30</b>	<b>.064</b>
Enjoy politics	<b>.254</b>	<b>.064</b>	<b>3.97</b>	<b>.098</b>	<b>.459</b>	<b>.059</b>	<b>7.83</b>	<b>.194</b>
Income	<b>.054</b>	<b>.017</b>	<b>3.14</b>	<b>.086</b>	-.001	.016	-0.09	-.002
Age	<b>.029</b>	<b>.004</b>	<b>7.14</b>	<b>.213</b>	<b>-.022</b>	<b>.004</b>	<b>-5.83</b>	<b>-.175</b>
Constant	<b>8.629</b>	<b>.433</b>	<b>19.93</b>	...	<b>2.36</b>	<b>.393</b>	<b>6.01</b>	...
F = 17.53 R <sup>2</sup> = .227					F = 18.52 R <sup>2</sup> = .241			

Bolded =  $p < .05$

from Reddit ( $b = -.610$ ) is inversely related to bonding capital. Whites, the religious, the more educated, those who are older and with higher incomes, and those who enjoy discussing politics all express higher levels of bonding capital. Males and U.S. citizens express lower levels of bonding capital.

In terms of civic engagement, polarization appears to be unrelated to civic engagement. However, getting the news from the BBC ( $b = .484$ ), the local newspaper ( $b = .349$ ), the Washington Post ( $b = .484$ ), and a news aggregator ( $b = .243$ ) are all positively related to civic engagement. Religiosity, education, enjoying politics are also positively related to civic engagement, while age is inversely related to civic engagement. Although no other variable achieves statistical significance using traditional values, it is notable that the standardized coefficients for the New York Times, Facebook, and YouTube (Betas = .04, .04, and .037, respectively) suggest these have a similar relationship with civic engagement as does news aggregator ( $\beta = .049$ ).

## 5 Discussion

Numerous commentators have noted how political polarization is increasing in the United States and other Western democracies. Polarization, so it is argued, rips at the fabric of society and leads to a culture war, and hyper-polarization can potentially lead to social unrest and physical violence. Popular wisdom, mainstream media, and numerous scholars argue that social networking sites such as Facebook and Twitter are driving polarization, as these allow partisan opinions and “fake news” to spread rapidly and incite intensely polarized cultural debates. Similarly, the rise of online “echo chambers” are also considered mechanisms by which social media contributes to polarization. Yet, others find political bias in more traditional forms of media are problematic and may even have a greater effect than social media on polarization. We aimed to investigate these claims and add to the discussion by further investigating the relationship between polarization, media use, and social capital.

Our results revealed stark differences between liberally polarized and conservatively polarized respondents in terms of their news consumption. Polarized conservatives got their news from radio talk shows and FOX News while avoiding newspapers and television news perceived to be liberal (e.g. CNN). Interestingly, using social media for news was unrelated to being polarized in a conservative direction. In contrast, while polarized liberals were likely to get their news from newspapers and television (watching CNN and avoiding FOX News), there were also significant social media effects. Specifically, polarized liberals got news from Reddit and news aggregators and avoided getting news from Facebook and YouTube or similar SNS sites.

Finding these media effects on polarization, we then investigated if polarization influences various forms of social capital. We first analyzed the relationship between polarization and generalized trust, which is often used as a measure of “bridging capital.” Here we found that polarized conservatives are less likely to trust people in general while there was no relationship between being a polarized liberal and trusting others. We also found that getting news from one’s local television station, Facebook, and Reddit was associated with lower levels of expressed trust in others; however, receiving news from a news aggregator was positively related to our measure of bridging capital. We also

considered the relationship between polarization and trust among intimates or “bonding capital.” In this case, polarized liberals were more likely to express high levels of bonding capital while being a polarized conservative was unrelated to bonding capital. Receiving news from one’s local paper or Youtube was positively related to bonding capital, while getting news from Reddit was inversely related to bonding capital. Finally, we also explored if polarization predicts civic engagement. Polarization appears to be unrelated to civic engagement, but several media sources—including watching BBC, reading the local paper or the Washington Post, and using a news aggregator—were positively related to civic engagement.

Consequently, our first contribution to the literature concerns how various forms of media may be contributing to polarization differently. Polarized conservatives appear to get their news from traditional sources, and while polarized liberals also use traditional news sources, they apparently supplement these sources with newer forms of news media. Thus, as for fear of social media creating a “filter bubble” or “echo-chamber” where an individual’s ideas are echoed back to them by a personalized Internet experience limited to those who share his or her worldviews, it appears that this is more likely to be happening among polarized liberals than polarized conservatives. Conversely, conservatives appear to be living in a “FOX news bubble” and “conservative talk radio bubble” while actively avoiding other forms of media often accused of being overly liberal. Thus, the digital divide extends to media consumption: liberals are embracing new sources of media while conservatives cling to traditional forms of media. Therefore, at least among the political extremes, the divide between polarized conservatives and liberals results in opposing groups who are informed by different sources. This lack of a shared information results in competing worldviews while providing little opportunity for finding common ground.

We also find that polarization varies in its relationship with various forms of social capital. While it may increase bonding capital for liberals, it may decrease bridging capital for conservatives. We consider this finding particularly disturbing, as it appears polarization may influence social capital in dangerous ways. While polarized liberals appear to be becoming “tribal” in the sense that they express high levels of bonding capital, polarized conservatives appear to be distrustful of those they do not know well. While polarized “tribes” who are unconnected are problematic in that there are limited avenues for pursuing dialogue among them, this becomes especially problematic when we consider this in combination with our findings that these groups are receiving information from very different sources. Given research that suggests growing media bias even in “mainstream” news [e.g. 33], it becomes increasingly likely that any dialogue that occurs between these opposing groups is going to begin with a different set of “facts”; and, if we cannot agree on what the facts are, it is unlikely we will ever agree on how facts should be interpreted. This combination of high bonding, low bridging capital coupled with the lack of a common source of news can explain the recent increase in lethal partisanship where groups not only disagree but also accept or even wish harm to their political opponents [5].

With this said, we want to warn against becoming overly alarmist. First, we should note that fully two-thirds of our sample *were not politically polarized*, and the non-polarized are receiving news from a variety of traditional and newer forms of media. Next, there is evidence that even among those who are polarized, people still interact

with those who do not share their political views. Respondents were asked if most of their close friends shared their views on government and politics, and while 54% of those who were polarized said they did, 46% had close friends with differing views. More encouragingly, among those who were not polarized, 67% had friends with differing views. Thus, at least for most people, we do have access to differing political perspectives, and these perspectives are shared through traditional media and social media. Consequently, while there may be cause for concern, those claiming we are so polarized that compromise is impossible are likely overstating their case. Nevertheless, civil discourse would undoubtedly benefit from more dialogue across the political divide.

## 6 Conclusion

While claims that Western democracies are too polarized to function adequately are likely overly alarmist, there is evidence of a growing gulf between those who view the world through a political liberal lens and those who view it more conservatively. The media may be contributing to this growing divide, but we cannot blame only new forms of media. Although the personalized online experience may result in echo chambers, traditional forms of media appear to be leading to bubbles for some on the right. Thus, finding a way to bridge the information divide will be challenging, as humans have always tended to sort themselves along political lines. Even those who warn against filter bubbles and echo chambers [e.g. 22, 23] recognize this. Yet, it would behoove anyone interested in preserving democracy to continue paying attention to polarization and the influence media has on it because we find evidence that it is related to high levels of bonding capital but low bridging capital, which history has shown can be extremely dangerous. Finding ways to make social media achieve its promise of promoting the free-flow of information to stimulate discussions across opposing political camps should continue to be a goal of service providers, politicians, researchers, and the public at large. Our democracies can only benefit from doing so.

## Appendix: Univariate Statistics

N = 1424	Minimum	Maximum	Mean	Standard deviation
Polarized liberal	0	1	0.25	0.44
Polarized conservative	0	1	0.09	0.28
Bridging capital	0	1	0.40	0.49
Bonding capital	4	16	12.4	2.42
Civic engagement	0	8	3.8	2.21
News from CNN	0	1	0.28	0.45
News from FOX	0	1	0.28	0.45
News from BBC	0	1	0.09	0.29
News from local station	0	1	0.22	0.42

(continued)

*(continued)*

N = 1424	Minimum	Maximum	Mean	Standard deviation
News from radio talk show	0	1	0.13	0.33
News from local paper	0	1	0.25	0.43
News from New York Times	0	1	0.08	0.27
News from Washington Post	0	1	0.21	0.41
News from news aggregator	0	1	0.26	0.44
News from net (e.g. MSN)	0	1	0.35	0.48
News from Facebook	0	1	0.21	0.41
News from YouTube	0	1	0.08	0.28
News from Twitter	0	1	0.09	0.28
News from Reddit	0	1	0.04	0.23
White	0	1	0.72	0.45
U.S. Citizen	0	1	0.96	0.16
Male	0	1	0.48	0.50
Religiosity	0	5	2.2	1.89
Education	1	6	4.1	1.45
Enjoy discussing politics	1	4	2.4	0.94
Income	20,000	125,000	83,805	38,484
Age	18	90	52.02	17.74

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