*Political persuasion and extremism*

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Political elites and masses in the United States are increasingly polarized, and scholars have found this to be true for both issue polarization (Abramovitz and Saunders 2008; Iyengar et al. 2019) and social polarization (Mason 2018; Iyengar and Westwood 2015). The former, however, is still debated among political scientists over its relevance, implications, and more importantly its origins (Fiorina, Abrams and Pope 2005; Mason 2015; Lelkes 2018; Webster and Abramovitz 2018; Abramovitz 2006, 2007, 2010, 2021).

Despite the breadth of work on the levels of polarization, less work has examined the mechanisms behind mass polarization (Levendusky 2009). Dominant theories of public opinion would argue that issue polarization among the masses is caused by elite polarization (Converse 1964; Lenz 2012; Callander and Carbajal 2021), whereas other work has shown that elites strategically adopt increasingly polarized views to attract the electorate (Downs 1957). However, these approaches face an endogeneity problem leading to measurement issues. Recently, studies have attempted to account for these issues using novel machine learning approaches (Barberá et al., 2019).

In this article, I focus on a largely ignored mechanism behind mass polarization: persuasion. We have yet to know whether voters *can* be polarized. Issue polarization argues that electoral masses have adopted increasingly extreme views on policy. What remains an untested assumption is whether voters *can* be extreme. Albeit a simple question, we must question whether if this is possible. Foundational work questions whether voters have become more extreme (Fiorina, Abrams and Pope, 2005). Moreover, recent empirical evidence demonstrates that moderate politicians perform better than extremists, demonstrating the underlying preference masses have towards moderate politics (Ansolabehere, Snyder, and Stewart 2001; Canes-Wrone, Brady, and Cogan 2002; Hall 2015; Hall and Thomson 2018). Given this scholarship, how is it possible that voters have tended towards the extreme?

To answer this question, we must pose a more fundamental one: Can extremist politics persuade voters? Whether the mass public is more likely to be persuaded by extremist or moderate politics remains an unexplored topic. In this manuscript, I offer empirical evidence on this theoretical debate. I argue that persuasion is an underlying mechanism that explains issue polarization. Any cause of issue polarization must be exerted through persuasion to reach voters. Thus, the issue polarization argument is tenable insofar as voters can be persuaded by extremist views.

In the first section, I describe my empirical strategy. I approach persuasion with a novel method using network data from Twitter to model behavior change as a process of complex contagion. I calculate the level of exposure needed before individuals adopt extremist political behavior. My preliminary findings offer insight into a novel puzzle: Liberal users are more likely to adopt extremist views, but Republicans are not. I contextualize these results with possible mechanisms that explain extremist persuasion: the emotional valence of extremist politics, the personality traits of extremists, and the precision and quality of extremist signals.

*Mass polarization*

The United States has been polarizing since the 1970s (McCarty, Poole and Rosenthal 2006). Although we find widespread agreement on the polarization of elites, scholars actively debate on whether the public is polarized on *issues and policy* (see Evans 2003; Hetherington 2009; Levendusky 2009; Mason 2018).

Notwithstanding slight operational differences, definitions of issue polarization are in tolerable agreement. Issue polarization is described as a bimodal distribution of voter preferences with two peaks at the poles and a valley at the median. In other words, voters are more populated on the extremes and are less moderate (DiMaggio, Evans and Bryson 1996).

I relax the above definition following Hetherington (2009). Issue polarization does not require absolute extremity, but rather the relative extremity of preferences. Absolute extremity assumes that the peaks are at the poles of the left-right dimension. However, the peaks can be relatively extreme and separated by a plain, but not necessarily at the far-ends of the dimension. The peaks need not to have substantive difference of means, but only be somewhat separate. This is an important conceptual adjustment because it makes no assumptions on the meaning of extremity. How different do the means of the peaks need to be to claim mass polarization? There is indeed a lack of agreement among scholars on how *extreme* voters need to be to contend mass polarization. This is a difficult conceptual decision to make and partially explains the empirical disagreement on whether the masses have become polarized.

*Empirical disagreement*

Ample scholarship provides empirical evidence that the mass electorate has grown apart on political issues. They find that Americans are drifting away from the center to the poles of the ideological distribution. The electorate is populated by more ‘strong liberals’ and ‘strong conservatives’ at the expense of moderates (Abramowitz 2006, 2010; Campbell 2006).

Contrary to these work, we also find strong evidence of limited mass polarization (Hill and Tausanovitch, 2015). Fiorina, Abrams and Pope (2005) find that on key topics such as civil right issues and taxation Americans have preferences centered at the median. DiMaggio, Evans and Bryson (1996) provide opposite evidence to that of Abramowitz and colleagues: not only is mass polarization limited, but Americans have grown *less* polarized over time.

The debate on issue polarization is monopolized by disagreements on measurement and operationalization. However, there are other implications to the empirical discussion on measures that make time-series analyses difficult. Making inferences over time on attitudes towards issues is a laborious and problematic task. Policy issues have greatly evolved since the 1970s. For example, debate on civil rights in the 1960s was focused on provided fundamental rights to Black Americans. Today, debate on race is situated in a much more complex and nuanced context. How can we compare issue extremity when the nature of politics has changed so dramatically?

*Theoretical disagreement*

Although Converse (1964) notably writes that ideology hardly guides the views of the electorate, we do observe structure in mass preferences. One derivation of the spatial theory of politics outlined by Downs (1957) is the single-peak postulate. The preferences of a voter are said single-peaked if we find ordering of preferences along a left-right dimension such that ranking of preferences decreases as they move away from their ideal point (Austen-Smith and Banks 1999). The most preferred policy is at the peak of the ordering, the median preference thus prevailing (Penn, Patty and Gailmard 2011). This postulate is frequently examined on an individual level (Niemi 1969; Rowley 1984; Feld and Grofman 1986; Niemi and Wright 1987; Radcliff 1993).

If we shift the logic of single-peakedness on an aggregate level, we observe a normal distribution of mass preferences that is unimodal. Although this distribution is rarely examined in the literature, it is particularly salient to describe the electorate as centered at the median. For example, Fowler et al. (2021, p.23) find a normally distributed set of ideal points in a survey of over 250,000 respondents. Corroborating with the principal that voters hold normally distributed preferences, a large literature finds that moderate candidates perform better during elections (Ansolabehere, Snyder, and Stewart 2001; Canes-Wrone, Brady, and Cogan 2002; Hall 2015; Hall and Thomson 2018).

Single-peakedness and issue polarization offer conflicting predictions of the distribution of political preferences. The median voter theory would view the distribution as a normal where most voters have preferences around the mean. If the electorate is polarized on issues, the distribution of preferences would be bimodal with peaks at the extremes. I illustrate this contrast in distributions in Figure 1.

***[Figure 1 about here]***

From a behavioral perspective, taking extremist positions on policy issues is significantly more costly than adopting moderate views. It takes more time to get information given that extremity is often synonymous with high political interest (*see fowler et al 2021 ‘moderates’).*

Egan (2013) establishes the conditions under which individual preferences are double-peaked. These conditions, however, describe an electorate who prefer *both* liberal and conservative policies. The distribution does not describe a polarized electorate, but ironically a bipartisan one.

The theoretical debate between single-peaked preferences and issue polarization is largely ignored in political science (Hetherington 2009; Serra 2015; Jones et al. 2021). While focusing on

voting cycles, coalitions and majority-rule, the literature on single-peakedness dismisses the recent terrain of behavioral political science (Black 1958; Arrow 1963; Riker 1961, 1980; Brams, Jones and Kilgour 2002; Penn, Patty and Gailmard 2011; List et al. 2013). Yet, the notion that the electorate is polarized and unimodal in preferences is fundamentally contradictory.

To summarize, issue polarization is faced with both explicit and implicit opposition. Theoretically, it implicitly contradicts one of the core tenets of spatial theories of ideology and preferences, single peakedness. Empirically, it is explicitly met with resistance on its magnitude, notwithstanding the issues related to measurement and time. To demonstrate the existence of issue polarization, it is necessary to go beyond these debates and test its underlying mechanism.

In the next section, I provide direction on this debate by testing an overarching mechanism of issue polarization: political persuasion.

*Bridging the gap: Persuasion as a mechanism for mass polarization*

In the previous section, I detail some empirical and theoretical debates that question the validity of mass polarization. In light of these concerns, it is important to address the *fundamental underpinnings* of polarization to move beyond unsuccessful disputes.

To question the foundational plausibility of issue polarization, we must test mechanisms. Whatever the causes of polarization, how are the effects exerted? In this manuscript, I probe what I consider to be an underlying mechanism of issue polarization: persuasion. I define persuasion broadly in line with Suhay, Grofman and Trechsel (2020, 2) as an attempt to influence one’s political attitudes, beliefs or behavior.

Issue polarization is not possible without voters being persuaded by extremist politics. Naturally, the masses should be more likely to prefer extremist policies if they have grown increasingly extremist.

Persuasion is not only a plausible mechanism but is the ideal mechanism to test issue polarization. Any cause previously identified in the literature that explains issue polarization *must* be exerted through persuasion. Issue polarization sustains that the electorate changed its views to become more extremist. I argue that for masses to change their behavior they must be persuaded. The logical foundations of issue polarization would be challenged if at the height of the phenomena the electorate is nonetheless more likely to be persuaded by moderate views. I illustrate the persuasion as a mechanism in Figure 2.

***[Figure 2 about here]***

I conceptualize persuasion as latent mechanism. Some may see its flaccidity as a bug, but it is in fact a feature. Given that all causes of issue polarization must go through persuasion to reach the masses, its test will determine the underlying validity of the issue polarization argument. Extremist persuasion is a required mechanism for issue polarization, thus an ideal one to probe.

Empirically, testing the persuasion mechanism will either provide or withdraw precedence to the empirical observation of issue polarization. Theoretically, I seek to show whether it is possible for the unimodal distribution to be split into two peaks, as arrows *a* and *b* show in Figure 1.

To summarize, my goal in this manuscript is to test the extremist persuasion mechanism of issue polarization. If extremist politics is persuasive, voters may be inclined to adopt extremist views on policy. This gives precedence to the argument that masses have polarized on issues, or at least have the potential to be if persuaded.

*Empirical strategy*

To give precedence to the issue polarization argument, we must test its underlying mechanism that sustains its core logic: persuasion. In this section, I focus on how I probe extremist persuasion using social network analysis.

*Persuasion and complex contagion*

To measure extremist persuasion, I use the notion of complex contagion from the network science literature. Complex contagion describes a learning process in which agents requires \textit{social reinforcement} to adopt behavior (Centola and Macy 2007). An individual will adopt a behavior following peers in their network who have already adopted the behavior. This learning process follows a logic of hearding, where an agent requires the implicit approval of their peers to ascribe legitimacy to the behavior.

Studies on complex contagion will simply count the number of exposures an agent requires before adopting a behavior. For example, Gonzalez-Bailon et al. (2011) study the case-study of the 2011 Spanish protests and measure the number of messages related to the mobilizations Twitter users were exposed to before tweeting about the protests. This statistic is named the *threshold parameter*. Figure 3 provides a schematic representation of complex contagion and threshold parameters.

***[FIGURE 3 ABOUT HERE]***

Complex contagion is not used as a modeling process with associated assumption, but as portrait of a social phenomenon. The goal is to observe whether agents require multiple exposures before adopting behavior, or not. For example, Gonzalez-Bailon and colleagues ask whether online protest recruitment shows signs of complex contagion. In this manuscript, I move beyond this logic by assuming that political behavior adoption follows a process of complex contagion backed by ample scholarship (SOURCES). Instead, I compare threshold parameters across different *ideologies*.

How can complex contagion test the mechanism of extremist persuasion? I compare threshold parameters of political behaviors across the left-right dimension. I will compare the number of required exposures before adopting extremist behavior to moderate behavior. The test is simple: extremism is more persuasive if the number of exposures required to adopt is lower. Under the assumption that behavior adoption is costly, one who does so is consequently persuaded by its legitimacy. For example, I consider a voter to be persuaded by Joe Biden’s performance if they express their satisfaction with the President. In sum, I broadly measure persuasion as the process of adopting behavior.

How can measuring persuasion at one point in time speak to a literature that examines mass behavior over long periods of time?

*Data*

I use a dataset of all tweets posted in the United States related to the 2020 US Presidential election. Tweets were collected from the Twitter API using keyword and mention search. I include the list of mention accounts and keywords in Appendix A. Although I eventually plan on using the entire dataset, I only use tweets posted in June 2020. This represents a total of 67,181,551 tweets.

Twitter data allows me to measure behavior adoption in real time.

*Behavior adoption and exposure*

Gonzalez-Bailon et al. (2011) conceptualize behavior adoption as tweeting support for the protests. This is a common conceptualization in the social science literature of complex contagion. In this article, I am concerned with the adoption of extremist and moderate behavior.

I measure behavior adoption with the use of a hashtag. A twitter user adopts a behavior when they write a tweet that uses a specific hashtag. In our case, this specific hashtag relates to ideology. A user adopts extremist behavior when they author a tweet with an extremist hashtag.

Defining what an extremist hashtag comes with several challenges. It is a complex task to bin hashtags in ideological groups. Nonetheless, we can qualitatively identify hashtags that can be considerate extremist or moderate. Table 1 shows the extremist and moderate hashtags I use in this manuscript for both Democrats and Republicans.

***[TABLE 1 ABOUT HERE]***

The threshold parameter measures the amount exposures to a behavior required before adopting the behavior. I identify the number of times a user was exposed to a hashtag before authoring a tweet with the hashtag. Past studies using Twitter data often measure exposure with the number of neighbors in a user’s network who have adopted the behavior. The twitter data is a following network.

In this manuscript, I measure exposure with a retweet network. This has important implications for the conceptualization of exposure. A user is exposed to a behavior (hashtag) when they quote tweet or retweet a tweet with the hashtag. For example, a user is exposed to #trump2020 when they retweet a tweet that contains #trump2020.

The main advantage of measuring exposure in a retweet network instead of a following network is its overtness. We can be certain that a user notices a hashtag since retweets and quotes capture direct engagement. In a following network, we assume that users notice behavior of every neighbor. To satisfy this assumption, we could image a user viewing every single tweet that every user they follow authored. This is a strong assumption to make considering the number of links a user has. The behavior of one’s peers are thus not necessarily internalized.

*Opportunities and challenges measuring persuasion with complex contagion*

The use of hashtags measures the adoption of extremist political behavior. It may however not measure extremism on issues, which is supposed to capture issue polarization. *Important to think of this…*

Measuring issue polarization with online persuasion presents several advantages relative to survey measures. First, theories of public opinion demonstrate that survey data will be artificially centered around the mean because of lack of sophistication (Zaller 1992). Indeed, the literature on political behavior consistently demonstrates inconsistent self-reports of opinion (Campbell et al. 1960; Miller and Stokes 1963; Converse 1964; Lenz 2012; Broockman 2016)

*See Hetherington (2009) p. 433 first paragraph*

*Results*

In this section, I present the data analysis on the adoption of extremist and moderate behavior.

I first show results on Republicans followed by Democrats.

First, I show the distribution of ideal points of users who either adopted or exposed to each tweet. Specifically, I compare the distribution between the moderate hashtag and the extremist hashtags.

Second, I show results on the threshold parameter for each hashtag.

*Discussion*

This manuscript seeks to provide empirical evidence for a mechanism causing issue polarization. But what are the mechanisms behind the mechanism? That is, why does extremist politics persuade voters? I offer several explanations for why extremist political behavior is more persuasive than moderate politics. These explanations are the reasons why extremist behavior adoption become less costly.

1. The Emotional Connection

https://www.pnas.org/content/pnas/118/37/e2114484118.full.pdf

First, emotional valence can reduce the cost of extremist behavior adoption.

*See: The Influence of Emotions on Trust (Myers and Tingley 2011).*

*“Our findings suggest that negative emotions can decrease trust, but only if those negative emotions produce low certainty appraisals. Anxiety, a low certainty emotion, has a negative impact on trust while Anger and Guilt, two emotions that differ in their control-appraisals but induce the same high level of certainty, appear to have no clear effect on trusting behavior.”*

*This relates to more than emotions, but the overarching reason for why extremism is persuasive. There is low amount of uncertainty in extremists behavior (as individuals they are confident)*

Second, the personality traits of extremists can increase the likelihood of cue-taking from voters.

Chen et al. (2021, Psychological science)

Finally, the ideological signal expressed by political extremists is precise.

‘’Regardless of which of these views is correct, nearly all the published work argues implicitly or explicitly that conversion—individual voters becoming more extreme over time—is an important source of any observed polarization (Abramowitz and Saunders 1998; Layman and Carsey 2002a; Levendusky 2008).2 These works argue that ordinary Democrats and Republicans become more liberal and conservative (respectively) in response to changing elite positions. In short, as elite parties become more divided, they send voters more homogeneously liberal or conservative cues, thereby making it easier for ordinary voters to adopt their party’s position on the issues. These changes move voters away from the center and toward the ideological extremes, thereby increasing polarization. This less centrist and more divided distribution of mass opinion would have profound implications for elite behavior (Jacobson 2006b).’’

See *The Electoral Implications of Candidate Ambiguity (Tomz and Van Houwelling, 2009)*

* Defining issue polarization
* Define extreme/extremism
* Take out the who leads who follows debate in the intro. Or rather, be explicit than I’m not solving these issues.

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