Social Media Use and Polarization In Ontario: 2018 Case Study

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1 Introduction

2 Social Media And Polarization

2.1 What is Polarization

In the literature on polarization there has been much debate on the relationship between ideology and partisanship. Scholars studying polarization, particularly in the United States, have contrasting views on the nature of modern political polarization. Some scholars argue that ideological or policy polarization has been increasing for both political elites and the electorate more broadly. Another group argues that partisan sorting has led parties to become more ideologically homogeneous, while party elites have become more polarized, which leads to the perception that the electorate is becoming more polarized. Finally, a third group argues that despite opposing partisans being ideologically similar they increasingly dislike and distrust members of the opposing party (**iyengarOriginsConsequencesAffective2019?**). These

divergences in understandings of political polarization have led studies on polarization to differentiate between what is called called ideological/policy polarization (**masonIdeologuesIssuesPolarizing2018?**) and affective polarization (**masonUncivilAgreementHow2018?**) in their analyses of the causes and consequences of political polarization.

2.1.1 Ideological Polarization

Ideological polarization refers to the claim that supports of opposing parties or camps (**bantelCampsNotJust2023?**) have distinct political beliefs. Additionally, these differences in beliefs systems are not just present at the elite level but also present at the individual level. Furthermore, scholars who support this assertion argue that this divide not only exists but has been growing considerably in the United States since the 1970s. Studies that have provided evidence that Americans are increasingly divided on various emotionally charged issues including abortion, gay marriage and religion.

The idea that the public is ideologically polarized has long been questioned in the literature on public opinion and voting behaviour. (**converseNatureBeliefSystems1964?**) found that Americans did not engage

2.1.2 Affective Polarization

2.2 The relationship between social media usage and polarization

It is often considered a forgone conclusion that social media usage is linked to increased levels of affective and policy polarization. Proponents of this idea argue that social media platforms create "echo chambers" or "filter bubbles" where users will only encounter ideas and policies that they already agree with Terren et al. (2021). Since the internet is a high choice media environment individuals can either choose to be exposed to diverse information

or select media that reinforce their pre-existing opinions (Dubois & Blank, 2018). On social media echo chambers occur because users shown ideologically agreeable materials as a result of these platforms' algorithms that show users content based on their past behaviour (Raynauld & Grennberg 2014). However, the empirical evidence supporting the existence of eco-chambers on social media has been mixed. Most studies in the United States find that Republicans and Democrats have similar media diets, both online and offline. Additionally, studies have found that there is some evidence that echo chambers exist on Twitter (now known as X) but not on Facebook. Notably, Terren et al. Terren et al. (2021) found that studies that used digital trace evidence found more evidence of echo-chambers and polarization than studies that used self-reported data. For example, using Facebook trace evidence Bakshy et al. (2015) find that most users have Facebook friends who belong to the other party and that individuals are exposed to cross cutting content. They also find that individual choices, not algorithms, are what determine if an individual engages with opposing viewpoints. Using self reported social media usage, Dubois & Blank (2018) find that the majority of social media users, encounter information they disagree with, use multiple sources, and often attempt to confirm the information they are presented.

The evidence linking the presences of echo chambers to increased polarization is also unclear (Kubin & Von Sikorski, 2021). Some studies find that increased social media usage predicts increased polarization (Cho et al., 2018; Tucker et al., 2017). This relationship is also re-enforced by posting more on social media and sharing politically relevant content. However, other studies have found that social media usage has a small or no effect on polarization. Through a review of recent studies on the relationship between social media usage and polarization, Bavel et al. (2021) posit that although social media usage is unlikely to be the main driver of polarization but is often a key facilitator. A recent experimental evidence has found that individuals who de-activated their Facebook accounts became less polarized due to less exposure to political news and opinions. Other studies have demonstrated that the

"echo chamber" aspect of social media is not what drives polarization. Instead, exposure to hyper-partisan messages from the opposing party leads to a significant increase in polarization among Republicans but not democrats. Boxell et al. (2017) observe that the individuals who are the most polarized are those who are the least likely to use social media. Specifically, they found that adults over 75 are becoming polarized at a faster rate than those under 40, while also being far less likely to use social media. Therefore, any account that links social media usage to increased polarization must also account for why individuals who do not use social media are becoming more polarized than social media users.

The evidence that social media usage leads to increased polarization in Canada is even more limited. There is evidence that affective polarization has been increasing in Canada (Johnston, 2019). Additionally, there is are mixed conclusions with regards to policy polarization in Canada. One study that measured polarization using preferences towards redistributive policies found that Canada experienced a surge in partisan sorting between 1992 and 2015 (Kevins & Soroka, 2018). However, another study that measured polarization using distribution based measures only found evidence of ideological polarization increasing after the 2019 Canadian election (Merkley, 2022). Furthermore, none of these studies investigate the factors that have contributed to the rise of both affective and ideological polarization in Canada.

2.3 Polarization and Online News Consumption

In contrast to the contested relationship between polarization and social media usage their is clearer evidence that increased online news consumption is linked to increased polarization. Early studies of online news media found that partisan online sources engage in greater partisan filtering of content than traditional news wires (Baum & Groeling, 2008). Additionally, studies have found that individuals who consume news online are often more polarized than those who only use offline "legacy" news sources (Fletcher et al., 2020). Garimella et al. (2021) find that

both the structure of news sites and the behaviour of online news consumers contributes to users only consuming news that reinforces their ideological priors. Specifically, they find that the online news environment allows users actively seek out news sources that are ideologically aligned with their prior beliefs.

3 Ontario 2018 Summary

4 Data and Methods

4.1 The 2018 Ontario Post Election Study

- Sampling strategy
- Questions used to construct variables

4.2 Indenpedent Variables

4.3 Polarization Varaibles

4.3.1 Affective polarization

We observe affective polarization using two commonly used measured to measure affective polarization in multiple party systems. The first first measure, developed by Wagner (2021), creates an individual affective polarization score for each respondent based on the *spread* party like scores for each of Ontario's four major political parties. Like scores for the parties are drawn from feelings thermometers that ask respondents to rate the parties on a scale from 0 to 5 (See the Supplemental Materials for full question wordings).

For formally the Weighted Affective Polarization (WAP) equation measured spread for parties j and voters i:

$$Spread_i = \sqrt{\sum_{p=1}^{P} v_p(like_{ip} - \overline{like_i})^2}$$

where v_p is the vote share of each party measured as proportion with a range of 0 to 1, and the mean affect scores weighted by party using the following equation:

$$\overline{like_i} = \sum_{p=1}^{P}(v_p * like_{ip})$$

The WAP scores are then used in OLS regression with the independent variables discussed above to determine understand the relationship between social media usage, political interest and affective polarization.

4.3.2 Policy polarization

In order to measure policy polarization we create ideological distributions based on 12 policy issues. All the measures were re-coded so that 0 indicates the most left-wing position and 1 indicates the most right-wing position. The items were then added to create an ideological distribution that includes all 11 items. In this 0 represents being the most left-wing on all issues and 11 represents being the most right-wing on all issues.

4.3.2.1 Bimodality Coefficent

First we use these distributions to calculate the bimodality coefficient (BC). The BC is calculated using the `bimodality_coefficient` function from the `mousetrap` package in `R` which employs the following formula:

$$BC = \frac{s^2 + 1}{k + 3 * \frac{(n-1)^2}{(n-2)(n-3)}}$$

where s represents the skewedness of the distribution, k represents the distributions excess kurtosis, and n refers to the sample size. A BC of 0 indicates a unimodal distribution and a BC of 1 indicates a distribution is considered **completely** bimodal. A distribution is typical considered bimodal when $BC \geq 0.55$. In order to measure the relationship between social media usage and ideological polarization using the BC we calculate the BC for the ideological distributions of individuals who primarily receive news from legacy media, online media sources, social media, and those who primarily use a mix of the three. Additionally, we compare the BC for those who use social media regularly and those who do not.

4.3.2.2 Distinctiveness Coefficent

We also use the distinctiveness coefficient first used to measure levels of polarization Lelkes (2016) and Levendusky & Pope (2011) which is typically referred to as the overlap coefficient (OVL). This measure compares the overlap of the ideological distributions of two groups using the following formula:

$$OVL = \int_{-\infty}^{+\infty} |f(x) - g(x)| dx$$

where $f(x)$ is the probability density function (PDF) of one ideological distribution and $g(x)$ is the PDF of another. We calculate the the OVL using the `overlap` function from the `bayestestR` package in `R`. We compare the distributions of those who voted for the Liberal and NDP parties (left-leaning parties) to those who voted for the Conservative Party (right-leaning party) for those primarily receive news from legacy media, online media sources, social

media, and those who primarily use a mix of the three and for those who use social media regularly and those who do not. In order to compare

4.4 Results

4.5 Discussion

4.6 Conclusion

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