



The Canadian Information Ecosystem

Produced by the
Media Ecosystem Observatory
as part of the
Canadian Digital Media Research Network

CANADIAN
DIGITAL
MEDIA
RESEARCH
NETWORK

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The Media Ecosystem Observatory is an interdisciplinary research initiative dedicated to analyzing the complex web of online harms and digital threats to democracy, while actively working to safeguard against them.

The Observatory coordinates and supports the Canadian Digital Media Research Network. The CDMRN is a pioneering initiative committed to fortifying and fostering resilience within Canada's unique information ecosystem. Its mission is to understand the dynamics of information production, dissemination, and consumption across digital media with the goal of empowering Canadians to navigate the complexities of the modern digital age.

Funded by the
Government
of Canada

Financé par le
gouvernement
du Canada



This project has been made possible in part by
the Government of Canada.

Ce projet a été rendu possible en partie grâce
au gouvernement du Canada.

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Foreword from the Director

This report captures a snapshot of the Canadian information ecosystem in 2023. It is the first such effort to provide a baseline against which future studies can be benchmarked. It offers a range of analyses, reflections, and insights into the Canadian information environment. Behind these are millions of data points drawn from social media and surveys. An exceptionally talented and energetic team of scholars have collected, cleaned, analysed, and interpreted the data and have laid out their empirical assessment of the nature and character of the Canadian information ecosystem.

This report is part of a broader ambitious project aiming to radically increase Canadian capacity to study and understand the way information comes to shape the political discourse and inform the attitudes and behaviours of Canadians. This project—the Canadian Digital Media Research Network (CDMRN)—is many years in the making and exists today because many leading scholars and public servants recognize the urgent need to better understand the forces shaping our information ecosystem. The Research Network is funded by Heritage Canada’s Digital Citizen Initiative. For more information, visit <https://www.cdmrn.ca/>.

More than anything else, my hope is that the work in this report inspires a wave of analysis from Canadian and international scholars keen to begin to develop more comprehensive and ambitious understandings of the information ecosystem, infrastructure, and flows of a country. To that end, all data and tools used to produce this report are made available to members of the Research Network and, upon request, to the broader research community.

1. Executive Summary

Democratic governments have been seized with concern about mis- and disinformation. There is a malaise that we live in an accelerating post-truth era where a foundational pillar of democracy—the free exchange of factually accurate information—is endangered. And there is a strong feeling something must be done.

In this report, we assess this concern. We ask: what claims are being made about the nature of the information ecosystem? Can we evaluate them? How are the attitudes of Canadians changing? Are the digital media we produce and consume harming or helping? In some cases we are able to provide straight-forward answers, in others we are able to evaluate some of these claims, and still, in others, we can simply describe what we can know today and lay a path forward for future research.

To do this, we collected survey and social media data. Using large national surveys from 2018 and 2023 as well as targeted surveys during key political moments (the June 2023 by-elections and the 2023 Canadian wildfire season), we are uniquely able to speak to trends and to how events may shape behaviours and attitudes. Using a novel social media data collection method that links important Canadian political influencers across their social media accounts, we are also uniquely able to comment on concentration of influence and fragmentation in the Canadian information ecosystem. The report details numerous findings. The four most central are:

We find that **most Canadians are inattentive to politics**. Canadians do not regularly consume political news, generally have low (and decreasing) levels of political knowledge, and have poor awareness of important political figures in Canada and the United States. When news was removed from Facebook, Canadians (including politically active ones) did not noticeably change their Facebook usage behaviour and do not appear to have moved to other social media platforms.

Individuals' news consumption and attitudes have been generally stable in the last five years. We observe few shifts in what traditional news sources people consume. Despite this continuity of consumption of CBC, Globe and Mail, La Presse, etc., we do find a **significant decline in media trust over the last five years**. Moreover, we do see **an increase in use of social media for news**, with a rapid rise of TikTok as well as an increased use of Instagram, WhatsApp, Reddit, and Snapchat. Those who use social media for news tend to be less trusting of traditional media and are less likely to participate in politics.

Third, we find a **high degree of concentration of influence in digital media**. Some entities receive a highly disproportionate share of the attention, engagement, and impact on the political discourse. This inequality is particularly pronounced among federal and provincial elected officials in Canada. Several large Canadian news outlets — notably Global News and CTV — have been able to amass large social media followings on YouTube and TikTok respectively, and capture a large percentage of politics and news-related engagement.

Fourth, we find that the **online discourse among provincial and federal politicians across TikTok, Facebook, and Instagram is not highly segregated on partisan lines**. Instead, the federalism of Canada is reflected in the information ecosystem, with politicians tending to share similar content as their provincial political community. Ideology is not the primary force shaping the structure of the Canadian information ecosystem. While certain topics of discussion do tend to be associated with some political party families more than others (e.g. left parties such as the NDP tending to focus on health more than any other single topic), the rest of the political spectrum tends to discuss similar issues, with high emphasis on international politics and issues explicitly related to government and governing.

This report also features four case studies that provide insight into one or more

facets of Canada's unique information ecosystem.

A first case is an evaluation of **Meta's decision to block news on their platforms** in Canada. Before the ban in August 2023, the Facebook Pages of Canadian media outlets generated an estimate of between 5 and 8 million views of news content per day. The block has wiped out Canadian engagement and resulted in an estimated 89.3% loss of views. Canadians remain active on Facebook despite the ban, political groups have not seen any reduction in their activity, and we find suggestive evidence that political engagement on Facebook is not centred directly on the consumption and sharing of news content. Some Canadian news outlets have adopted work-around solutions, while many local outlets have gone dark.

A second case examines the extent **Canadians are aware of the media ecosystem of those who speak a different official language than they do**. We find that Canadians have difficulty recognizing and naming political public figures, even if they are "high" profile and well known among those who follow politics closely. Those who consume traditional media are significantly more likely to recognize public figures as compared to those who get their news from social media or who tend to avoid news altogether. English Canadians are more aware of the political and media environment of the United States than that of French-speaking Canada: they have very low recognition of French-speaking public figures, even among those francophones who have risen to national prominence. French-speaking Canadians are similarly (un)aware of public figures in English-speaking Canada. Bilingual respondents do tend to be more aware of public figures across the country.

A third case study investigates what **Canadians believe about wildfires and how they get their wildfire information**. We find that latent attitudes and behaviours have large impacts on where people consume information even during crisis situations. Moreover, their interpretation of the cause of extreme weather events is grounded in prior belief in human-induced climate change. Canadians who believe climate change is occurring due to human activity are far more likely to report that the 2023 wildfire season personally impacted them (for those in Alberta) and/or their friends and family (across Canada). In other words, where you sit on climate change informs how you experience (increasingly common) extreme weather events. Moreover, climate skeptics are generally far less likely to consult traditional media sources as compared to those who believe climate change is occurring due to human activity. The former tend to get more news from social media like YouTube.

A fourth case study examines **attitudes and behaviours during a set of four by-elections** held in the summer of 2023. We find that Canadians who were in a riding that held a by-election, report seeing substantially more misinformation as compared to the general Canadian population. Despite a heightened concern among Canadians about allegations of foreign intervention in the electoral process, most Canadians are confident that Elections Canada is safe from outside interference and are generally satisfied with democracy. Those living through a by-election are—at least temporarily—more politically active than those who are not.

The combination of targeted surveys examining specific elements of the information ecosystem paired with an innovative data collection method on online political discourse allows for a rich and broad examination of an information ecosystem. This report demonstrates the value of such an approach but is also just one more milestone towards the development, validation, and corroboration of a standard set of measures of information ecosystem health. Examining how events and discourses shape behaviours and attitudes is not an easy endeavor, but the approaches and methods laid out in this report represent an important step forward. Promising applications include examining malicious foreign interference in Canadian politics, cross-national information and influence flows more broadly, issue and affective polarization, ideological and partisan segregation, regional-national information dynamics, and the list goes on. Moreover, this rich data will support rapid identification of major information ecosystem shifts (such as might occur during a foreign interference incident) and an informed research, civil society, and government response. The Media Ecosystem Observatory and other members of the Canadian Digital Media Research Network are hard at work on these and other topics.

Detailed findings from each section are provided here. Details, discussion, and methodology are all found in the body of the report.

Section 3 Mapping the Canadian Information Ecosystem finds that:

1. Social media use is ubiquitous among Canadian politicians, particularly on the Meta platforms. 96% of Canadian federal and provincial politicians have a Facebook page, with heavy Instagram use, and much lower concentration of YouTube and TikTok accounts. NDP and Green Party Politicians are far more likely to have TikTok accounts than those from the Liberal and Conservative Parties.
2. It is possible to build an integrated map of an information ecosystem by linking common political influencers (politicians, journalists, media organizations, influencers) across social media platforms through a range of possible connections. We focus here on textual similarities and engagement
3. We demonstrate the value of this data structure by evaluating concentration of influence. We find that a small number of actors have a large and disproportionate share of social media engagement on YouTube and TikTok. YouTube concentration of views is more pronounced, as compared to that of TikTok where there is relatively more equality. Global News is the most popular political Canadian channel on YouTube while CTV has a large following on TikTok.
4. We further illustrate the value of this data structure through an examination of fragmentation of political discourse on Facebook, Instagram, and TikTok. On Facebook, we find that politicians seem to engage with external media pertaining to their home province more so than their party affiliation. Province, not party, seems to be the overriding principle by which news engagement is organised among politicians on Facebook

5. On Instagram and TikTok, meanwhile, we categorize social media content posted by politicians into different topics. We find that parties on the left speak more about *health* than any other single topic, while the rest of the political spectrum give comparatively more emphasis to *international* issues as well as those of *government* and governing. All parties give comparatively less attention to other topics like *inequality*, *crime*, *misinformation*, and *environment*.

Section 4 Mapping the Canadian Information Ecosystem finds that:

1. Most Canadians are inattentive to politics. On average, Canadians do not frequently consume news, have low levels of political knowledge, and have low awareness of important political figures in Canada.
2. News consumption patterns have been generally stable in the last five years. We observe remarkably few major shifts in what and how people consume their news. However, trust in traditional media has experienced a marked decline in the past five years.
3. People with high levels of political knowledge are more likely to have heard of conspiracy theories, but at the same time, they are more likely to be able to identify their falsehood.
4. How, and where, people get their news is strongly associated with important political attitudes and behaviours. We observe that traditional media users are more trustful and more likely to support government assistance for media. Social media users are less trustful of media outlets and are less likely to participate in politics. When they do participate, it is mostly online.
5. Canadians agree about journalistic ethics standards in Canadian media, that misinformation is an important problem, and that both the government and social media platforms should take action to reduce the prevalence of false information.

Case Study 1: Meta's decision to block news Canada in summer 2023 finds that:

1. Facebook Pages of Canadian news outlets generated between 5 and 8 million views per day of Canadian news content pre-ban and the blocking of news has triggered an estimated 89.3% loss of visible engagement with content posted by Canadian news outlets on Facebook.
2. Canadians remain active on Facebook despite the ban and we find suggestive evidence that political engagement is not centred around the consumption and sharing of news content.
3. Many local outlets have stopped posting altogether. Some Canadian news outlets have adopted work-around solutions.

Case Study 2: Language divisions in the Information Ecosystem finds that:

1. Canadians have a low awareness of politicians and journalists. They have difficulty recognizing and naming political public figures, even if they are “high” profile and well-known among those who follow politics closely.
2. Traditional and diverse media users are significantly more likely to recognize public figures than news avoiders for both journalists and politicians and generally more likely to recognize public figures as compared to those who get their news from social media.
3. English Canadians are more aware of the political and media environment of the United States as compared to that of French-speaking Canada. They have very low recognition of public figures from French-speaking Canada, even among those who have risen to national prominence.
4. Linguistic differences contribute to distinct awareness and subsystems of the Canadian information ecosystem.

Case Study 3: 2023 Canadian Wildfires finds that:

5. Whether or not you believe climate change is occurring due to human activity is highly correlated with believing that the 2023 wildfire season personally impacted you (just in Alberta) as well as your friends and family (across Canada). In other words, where you sit on climate change informs how you experience (increasingly common) extreme weather events.
6. Climate skeptics are generally far less likely to consult traditional media sources than those who believe climate change is occurring due to human activity. They tend to get more news from social media like YouTube.

Case Study 4: June 2023 Canadian by-elections finds that:

7. Canadians in by-election ridings report seeing substantially more misinformation as compared to the general Canadian population. Those who took our survey reported being exposed to a wide range of misinformation topics, including items relating to international news — such as American politics and the war in Ukraine — as well as about Canadian political leaders, including Justin Trudeau and Pierre Poilievre.
8. Many Canadians highlighted their concern about the allegations of foreign intervention in the electoral process as a subject of misinformation. However, most Canadians, both in the general population and those in ridings holding by-elections, are confident that Elections Canada is safe from outside interference and are generally satisfied with democracy.
9. Those living in ridings holding by-elections are — at least temporarily — more politically active than those who are not.

2. Canadian Information Ecosystem

The metaphor of the information ecosystem has come to be used in communications, information sciences, management, and has become a regular term of art used in by civil society groups when discussing journalism, news and social media, and the ways in which information moves and flows through actors, groups, and networks.¹ The metaphor encourages researchers and decision makers to adopt a holistic approach beyond studying, for example, polarization, disinformation, echo chambers, etc. in isolation.

¹ Susman-Peña, "Why Information Matters: A Foundation for Resilience"; Kuehn, "The Information Ecosystem Concept in Information Literacy".

We understand an information ecosystem as the sum of complex but analyzable set of relationships found in and across digital media.² An online information ecosystem is thus composed of interconnected but distinct communities across social and traditional media: distinct because of the different platforms that constitute it, but interconnected by the entities with accounts on multiple platforms. Entities then share content – i.e., information – across accounts and platforms, taking on different shapes and having impact based, in part, on who interacts with it and through what medium. As such an entity, the information ecosystem can be evaluated and its impacts can be observed and measured. The barriers to such a comprehensive approach are numerous and the resources required far exceed that of any normal academic or civil society group. Following ideas, narratives, themes, and individuals across their digital footprints is an ambitious and resource-intensive task.

It is this task that we concern ourselves with here. Understanding the information ecosystem on a national level requires interdisciplinary teams with the ability to collect, synthesise, and make sense of large amounts of data. Multiple digital observatories have thus emerged in recent years, from Australia to Europe to the United States, which aim to bring together diverse communities of researchers and stakeholders to analyse digital data to answer essential questions about the role social media play in modern democracies. Other national-level ecosystem studies have offered valuable insight into how information flows online shape political phenomena.³

This multi-faceted approach to understanding information flows online is becoming increasingly recognized as a valuable – although difficult – way of analyzing political and social dynamics online. Many researchers have used this “ecosystem” concept to understand various phenomena, such as fake news⁴ and identity presentation⁵, across multiple platforms.

This report applies the ecosystem approach to Canada and aims to describe the current state of the Canadian information ecosystem. We draw upon data from multiple surveys and a large-scale digital trace data collection to examine the current flows of online information in Canada, allowing us to identify the major contributors to and predominant topics within the ecosystem as of Fall 2023.

All data drawn upon in this report will be made available to other Canadian researchers interested in information ecosystem dynamics who are part of the Canadian Digital Media Research Network.

2 Zuckerman, “Why Study Media Ecosystems?”.

3 For example, Benkler, Faris, and Roberts’ 2018 book, *Network Propaganda: Manipulation, Disinformation, and Radicalization in American Politics* maps the American media ecosystem and describes the emergence and spread of disinformation in traditional and social media and its consequence: widespread distrust in media institutions.

4 Allen et al., “Evaluating the fake news project at the scale of the information ecosystem”.

5 DeVito, Walker, and Birnholtz, “Too Gay for Facebook: Presenting LGBTQ+ Identity Throughout the Personal Social Media Ecosystem”.

2.1. WHAT WE KNOW ALREADY ABOUT THE CANADIAN INFORMATION ECOSYSTEM

The Canadian information ecosystem has never been systematically mapped before, but numerous scholars and organisations have focused on identifying key features of the Canadian information environment, with five key features emerging:

First, Canadians are among the most heavy users of social media platforms globally. We are highly socially interconnected online. Canadians are very active on social media, with 4 out of 5 Canadians having a Facebook account, 1 in 2 having an Instagram account, 2 in 5 having an X (Twitter) account, and high usage of YouTube, LinkedIn, Pinterest, Snapchat, and Reddit.⁶ The popularity of TikTok has massively increased in the past several years, particularly among young Canadians.

Second, Canada is a relatively low polarisation country when compared with other countries such as the United States, Argentina, and the United Kingdom, although polarisation has found to be increasing in recent years.⁷ There is some limited evidence that online political discourse in Canada reinforces existing polarisation.⁸

Third, the Canadian media system has been classified as generally resilient against misinformation.⁹ Traditional Canadian media, as an institution, enjoys relatively high-levels of trust.¹⁰ There was little misinformation and disinformation shared during the 2019 and 2021 Canadian federal elections by traditional media outlets, and volume on social media tended to be low.¹¹

Fourth, the majority of Canadians vote in federal elections and Canadians tend to be active in civic and political life. While the COVID-19 pandemic prompted a decline in civic participation, Canada has routinely enjoyed a politically engaged population. However, this broad participation is not always reflected in online or important decision-making spaces. An inequality of voice, well documented in other political contexts,¹² is particularly pronounced on social media, where the online conversation is produced by a relatively small number of individuals.¹³

Finally, the Canadian information ecosystem is notable in linguistic and ethnic diversity. In addition to the French- and English-speaking communities, there

6 Gruzd and Mai, "The State of Social Media in Canada".

7 Merkley, "Polarization eh? Ideological divergence and partisan sorting in the Canadian mass public".

8 Gruzd, Anatoliy, and Roy, "Investigating political polarization on Twitter: A Canadian perspective".

9 Humprecht, Esser, and Van Aelst, "Resilience to Online Disinformation".

10 Owen et al., "Lessons in Resilience: Canada's Digital Media Ecosystem and the 2019 Election".

11 Bridgman et al., "Mis- and Disinformation during the 2021 Canadian Federal Election"; Owen et al., "Lessons in Resilience: Canada's Digital Media Ecosystem and the 2019 Election".

12 Schlozman, Verba, and Brady, *The Unheavenly Chorus*.

13 Bridgman, "Who Composes the Conversation? Observational and Experimental Evaluations of the Distinctiveness of Digital Activists".

are a multitude of linguistic minority communities who are highly influential in the Canadian political conversation. In recent years, there has been a growth of multicultural media, which seeks to provide news and information to linguistic minority populations. There has been some work to identify the consequences of these linguistic differences on information consumption patterns as well as attitudes and behaviours.¹⁴

2.2. STUDYING THE INFORMATION ECOSYSTEM

The information ecosystem is typically studied using digital trace data, with survey methods used to anchor any findings.

2.2.1. Digital Trace Data

The explosion of the production of digital data has been met with both excitement and hesitation from social scientists. When properly collected and analyzed, digital trace data—i.e. data generated and collected online from social media platforms—has proven to be uniquely insightful about the behaviour of online communities,¹⁵ modern manifestations of political expression¹⁶, and the shifting role of news organizations in contemporary democracies.¹⁷ However, collecting and analyzing social media data can be resource intensive and subject to numerous selection problems.

Generally, digital trace data is collected and employed in quantitative (sometimes called ‘big’) and qualitative (often through ethnographic methods) ways. Quantitative research allows researchers to statistically and computationally model and attempt to capture the dynamics of online spaces and communities. Qualitative digital trace research, on the other hand, instead offers the ability to provide a deeper understanding of social behaviors and attitudes as well as more detailed and nuanced analysis of social media dynamics.

We collected significant amounts of Canadian digital trace data across four platforms: Facebook, Instagram, YouTube, and TikTok. We then used a combination of both advanced quantitative and qualitative methods to make sense of what we collected and better understand how Canadian politicians, news outlets, and residents engage with social media.

14 Taras, “Digital Mosaic: Media, Power, and Identity in Canada”.

15 Lee and Lee, “#StopAsianHate on TikTok: Asian/American Women’s Space-Making for Spearheading Counter-Narratives and Forming an Ad Hoc Asian Community”; Weber and Neumann, “Who’s in the Gang? Revealing Coordinating Communities in Social Media”.

16 Literat and Kligler-Vilenchik, “How Popular Culture Prompts Youth Collective Political Expression and Cross-Cutting Political Talk on Social Media: A Cross-Platform Analysis”

17 Haze, Boczek, and Scharkow, “Adapting to Affordances and Audiences? A Cross-Platform, Multi-Modal Analysis of the Platformization of News on Facebook, Instagram, TikTok, and Twitter”

2.2.2. Surveys

Whereas digital trace data provides a reflection of the information ecosystem, survey data provides a reflection of the attitudes and opinions of Canadians more broadly, and not just those who are active online. Thus, survey research continues to be the most effective way to understand population-level attitudes and behaviours.

We can utilise survey research to efficiently collect data from a large number of participants across diverse populations and geographical locations in Canada. We can verify with a high degree of certainty that our survey respondents are located in Canada, before examining their experiences with political media in Canada.

As a complement to digital data collection methods, survey data helps inform the types of content that should be collected from social media, as well as which social media websites should be utilized for data collection.¹⁸

We employ various types of survey instruments, including planned cross-sectional surveys that collect data at a single point in time and longitudinal surveys that track changes in attitudes over time. This flexibility enables us to address a wide range of research questions, from examining short-term political events, such as the Alberta election, to investigating long-term trends in media usage.

2.3. WHAT DOES THIS REPORT AIM TO CONTRIBUTE?

This report aims to contribute to the growing literature and global discussion about the relationship between digital media and democracy by investigating and quantifying elements of the Canadian information ecosystem. Canada has rarely been a prominent topic in research on online information dynamics, which has left significant knowledge gaps. This report begins to address important questions about the evolving nature of the information ecosystem, and aims to help policymakers, journalists, civil society, and other researchers better understand the current state of our democracy.

First, we describe the structure of our information ecosystem: who are the biggest voices, what do they say, and where are they the most active? To do this, we collected large amounts of social media data from Canadian politicians, news organizations, and political commentators – what we collectively call political influencers – across multiple platforms, and assessed the similarities and differences in what they post and with whom they interact.

Second, we assess the impact of these political influencers by exploring the relationship between news consumption habits and political knowledge, trust, and misinformation through analyzing multiple nation-wide surveys. By comparing

18 Stier et al., "Integrating Survey Data and Digital Trace Data".

results from 2018 and 2023, we were also able to evaluate how the information ecosystem has shifted over the past five years.

Third, we present four case studies focused on major characteristics of the Canadian information ecosystem. We use these case studies as a way to both expand our understanding of the ecosystem and to demonstrate potential applications of our methodology. We provide an initial examination of the effect of Meta's decision to block news availability in Canada by comparing the relationship between Canadian news outlets and Canadian Facebook users before and after the ban. We use survey data to explore language divisions in the information ecosystem, response to extreme weather events during the 2023 wildfire season, and how by-elections impact important political attitudes, experiences, and behaviours.

We conclude with a brief discussion about our findings, as well as an extensive documentation of our methods.

3. Mapping the Canadian Information Ecosystem

Using digital trace data, this section offers a snapshot of the Canadian information ecosystem and provides a series of use cases for the novel data collection strategy employed by the Media Ecosystem Observatory. All results in this section should be understood as sign-posts for what is possible when attempting to understand the totality of an information ecosystem. Subsequent reports, briefings, and publicly-visible metrics will build on the material presented in this section.

Nevertheless, we find:

1. Social media use is ubiquitous among Canadian politicians, particularly on the Meta platforms. 96% of Canadian federal and provincial politicians have a Facebook page, with heavy Instagram use, and much lower concentration of YouTube and TikTok accounts. NDP and Green Party Politicians are far more likely to have TikTok accounts than those from the Liberal and Conservative Parties.
2. It is possible to build an integrated map of an information ecosystem by linking common political influencers (politicians, journalists, media organizations, influencers) across social media platforms through a range of possible connections. We focus here on textual similarities and engagement
3. We demonstrate the value of this data structure by evaluating concentration of influence. We find that a small number of actors have a large and disproportionate share of social media engagement on YouTube and TikTok. YouTube concentration of views is more pronounced, as compared to that of TikTok where there is relatively more equality. Global News is the most popular political Canadian channel on YouTube while CTV has a large following on TikTok.
4. We further illustrate the value of this data structure through an examination of fragmentation of political discourse on Facebook, Instagram, and TikTok. On Facebook, we find that politicians seem to engage with external media pertaining to their home province more so than their party affiliation. Province, not party, seems to be the overriding principle by which news engagement is organised among politicians on Facebook
5. On Instagram and TikTok, meanwhile, we categorize social media content posted by politicians into different topics. We find that parties on the left speak more about *health* than any other single topic, while the rest of the political spectrum give comparatively more emphasis to *international* issues as well as those of *government* and governing. All parties give comparatively less attention to other topics like *inequality*, *crime*, *misinformation*, and *environment*.

Policymakers, journalists, scholars, and pundits, often speak confidently of what Canadians are hearing on the news, or seeing on social media. We also routinely make bold claims about the character of our political discourse—for example, that it is becoming more polarised or partisan, that certain communities are heard more or less than others, that disinformation is increasingly prevalent, and that foreign interference is rampant. The confidence with which these assertions are made is remarkable in view of the fact that Canada has lacked (until now) an observatory with a panoramic overview of the entire discourse. In lieu of such an observatory, we are left to construct our view from what we ourselves have seen, what our small network of colleagues and friends have shared with us in passing. Our well-documented human tendency, however, is to surround ourselves with

like-minded people¹⁹, to read a limited constellation of news outlets that espouse our worldview or pertain to our geographic demesne, and to follow a limited set of accounts on social media that offer us the kind of political commentary we are most comfortable hearing. Our understanding of Canadian political discourse, in other words, is warped to favour our inherently provincial predispositions, as well as the limited scope and scale of the methods we have employed to study it.

To escape our predispositions we must seek to observe and map the Canadian information ecosystem systematically and panoramically. To do this we need to cast a wide net, tracking news and political commentary from St John's to Nanaimo, from Niagara to Iqaluit, from the Prime Minister to provincial parliament back-benchers, from CBC to the Napanee Beaver, and across the entire political spectrum.

The sheer volume of content produced in a single day across Canada, however, far exceeds the capacity of the most voracious reader. To make headway, we must be selective about whom to read, and moreover automate the process of collecting and sorting media data. This report represents an important first waypoint in that collection process.

First, we exploit the fact that while many speak, few are heard. There are millions of voters, but just a few thousand political representatives and candidates for public office. There are millions of Canadian social media accounts, but only hundreds of influencers who have acquired a sufficient following to directly shape the discourse. There are thousands of Canadian news outlets, but fewer than a hundred that set the agenda. In short, there is a small elite that garners the lion's share of views, engagement, and 'clout'. By tracking these few thousand elite organisations and personalities, what we call *political influencers*, we can capture (to a first approximation) Canada's political discourse. The process we undertook to identify these political influencers and their social media handles is described in detail in the methodological details section of the report.

Second, instead of reading and watching all of the content produced by these political influencers, we rely upon a mature library of automation tools to sort and organise such data to reveal patterns. On the one hand, we look at patterns of engagement between political influencers – does Hazel Thayer (a Canadian climate-change activist with a large following on Instagram and TikTok) follow Jagmeet Singh's (the leader of the federal New Democratic Party) Instagram channel? Do Danielle Smith (the Premier of Alberta and the leader of the United Conservative Party) and Truth North News (a digital media outlet that is primarily read by the political right) share a common readership? Such relationship patterns, aggregated into a network, reveal ideological alignments between different entities, and implicit alliances between otherwise distinct communities.

On the other hand, the text, image, and video content produced by political influencers can itself be categorised into different topics of conversation – environment, health, wildfires, India, Ukraine, inflation, and so forth. By

19 McPherson, Smith-Lovin, and Cook, "Birds of a Feather: Homophily in Social Networks".

automatically tagging content as related to each of these topics, and aggregating the information up, we can arrive at claims like “NDP candidates in Alberta focus heavily on the subject of affordable healthcare”, or “crime is an issue addressed far more by Canadian social media personalities than elected officials”. Whether these conclusions come as a surprise or not to the reader, we are uniquely positioned to make such statements objectively on the strength of systematic data collection – as opposed to the cultivated but ultimately biased intuition of pundits.

How does one characterise a nation’s political discourse? This is an open question with which scholars are only just now beginning to grapple. As our Observatory matures, so will our metrics. To begin with, however, we measure two broad qualities of an information ecosystem: *concentration* of influence and *fragmentation*.

CONCENTRATION OF INFLUENCE

By concentration of influence we mean the degree to which Canadian political discourse is led by an elite minority. In an authoritarian state, we would expect political discourse to be produced by and concentrated in the hands of very few: perhaps a single dictator and a few state-controlled media outlets. In a democracy like Canada’s, by contrast, we would expect to see a more equitable distribution of narrative power, with a plurality of voices speaking and being heard.

To operationalize this concept of concentration of influence, we borrow from the economics literature on wealth and income inequality. In that literature, it is commonplace to draw a Lorenz curve and calculate a country’s Gini coefficient of economic inequality. We borrow this procedure but use social media engagement metrics instead, to measure the inequality with which Canadian political content producers are viewed or engaged with by their audiences.

FRAGMENTATION

By fragmentation we mean the degree to which Canadian political discourse is internally disconnected and divided. In a healthy political discourse, politicians would generally listen to and debate with each other on all topics of concern to the polity. The aggregation of this behaviour on social media would generate a network in which members of different parties are strongly connected not only within their own parties, but across the aisle as well. News media outlets would not consistently take the side of one party or another, but would report even-handedly and be viewed and engaged with by voters from all parties. As a result, their positionality within a network would be very central.

The concept of fragmentation can be operationalized in many ways, and indeed it can take two well known forms: *polarisation* and *partisanship*. By polarisation we mean the fragmentation of political discourse into distinct camps forming ‘poles’ that rob voters of a middle ground. By partisanship, we mean fragmentation of discourse along party lines. In what follows, we test for partisanship by looking both at the kind of media shared and at the topics discussed by Canadian politicians.

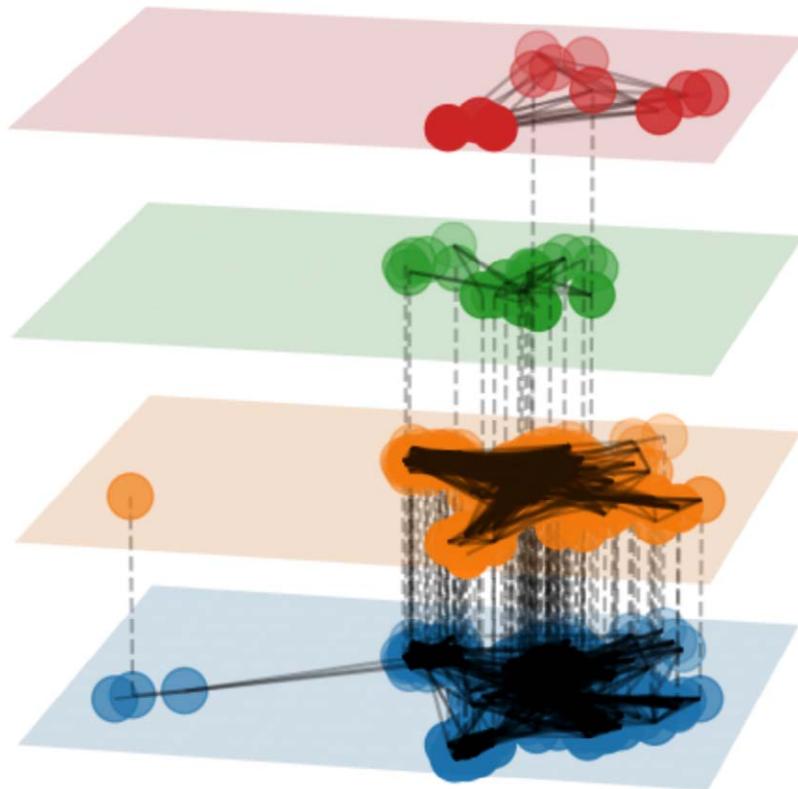


Figure 3.1: Multiplex view of Canadian political influencer social media accounts

A multiplex graph showing connections between the social media accounts of some of the most influential Canadian politicians. Each plane represents a social media platform: Facebook (blue, bottom), Instagram (orange, second from bottom), YouTube (green, second from top), and TikTok (red, top). Black edges within each plane represent connections between influencers on that platform. Black edges between planes occur where the same influencer has accounts on multiple platforms.

3.1. MAPPING THE CANADIAN INFORMATION ECOSYSTEM

Information ecosystems are composed of multiple information planes or ‘layers’ (e.g. a social media platform). Members of the ecosystem are often active on multiple layers, sometimes in distinct ways. For example, a news outlet may post frequently on TikTok but rarely on YouTube, or a politician may emphasise different issues on Instagram compared to Facebook. Additionally, current events may have distinct effects on each layer: a viral news story on one platform may only make small waves on another. To truly understand the complexity of this ecosystem, we must analyse across platforms. Specifically, this involves analysing all social media profiles of the examined political influencers. By doing so, we can identify how these layers are connected or disjointed—and begin to understand the Canadian digital media ecosystem.

[Figure 3.1](#) offers a depiction of the layered nature of Canada’s social media ecosystem for a sample of data on Canadian political influencers, visualised as a multiplex or as a many-floored network. In the Figure, each of the four social media platforms used in this report are depicted as a differently coloured plane. The social media accounts belonging to the influencers are depicted as circles, connected to each other within each plane by black edges representing detected commonalities. Notably, however, the figure also includes vertical edges connecting the different social media platforms together. These edges result from the fact that some influencers maintain accounts on multiple platforms, allowing

us to infer implicit connections between influencers across platforms. Thus, for example, if Janis Irwin's (an NDP Member of the Legislative Assembly of Alberta) YouTube account shares many subscribers with CBC's YouTube account, we can draw a connection between them within the YouTube plane. Say Janis Irwin also maintains a Facebook page that links to web pages that are also regularly linked to by Jagmeet Singh (the leader of the federal New Democratic Party), then we can draw a connection between Singh and Irwin on the Facebook plane. But crucially, we can also connect CBC to Singh, using Irwin as the go-between. Even if Singh does not have a YouTube account, he can be positioned in the broader information ecosystem network. In this sense, the data we collect generates more than just the sum of its parts, producing not merely a multi-platform but in fact an *inter*-platform view of Canadian political discourse.

This multiplex visualisation can be collapsed into a single multigraph, formally defined as a type of graph in network theory which permits multiple edges, allowing for more than one edge to exist between the same set of nodes. These multiple connections represent different types of relationships or interactions occurring between the entities. This multigraph is not projected in this report, but the underlying data structure is used for all subsequent analyses.

3.1.1. Canadian politicians use of social media

One way to see the richness of the multigraph and the cross-platform connections is to examine the social media presence of politicians across the country. Politicians on social media are a unique set of entities – they are finite and their characteristics (i.e. Liberal Member of Parliament from the Greater Toronto Area) can be tracked across time. Before turning to the analysis of concentration of fragmentation, this section provides a descriptive account of social media use by Canadian federal and provincial politicians in 2023.

[Figure 3.2](#) shows the proportion of politicians using Facebook, Instagram, YouTube, and TikTok at the federal level (CA for Canada) and for each province (standard provincial abbreviations). Facebook is ubiquitous, with an astonishing 96% of federal and provincial politicians having an official page. 78% of these politicians have an Instagram account, 25% have a Facebook account, and 6% have a TikTok account. The two Meta platforms account for the lion's share of social accounts by politicians. Note that usage of X/Twitter is also high but data was not collected for this report. There is also large provincial variation, with Saskatchewan politicians being less likely to have social media presences and the larger provinces having higher Instagram and YouTube use. Albertan politicians are the most frequent users of TikTok.

[Figure 3.3](#) shows the same percentages but instead grouped by party family (i.e. the Progressive Conservative Party of Ontario is grouped with the federal Conservative Party of Canada). Here we observe some meaningful differences of social media use across party families, with Conservatives tending to have fewer social media accounts, particularly on Instagram and TikTok. The NDP and Green parties are most likely to use TikTok which is consistent with them tending

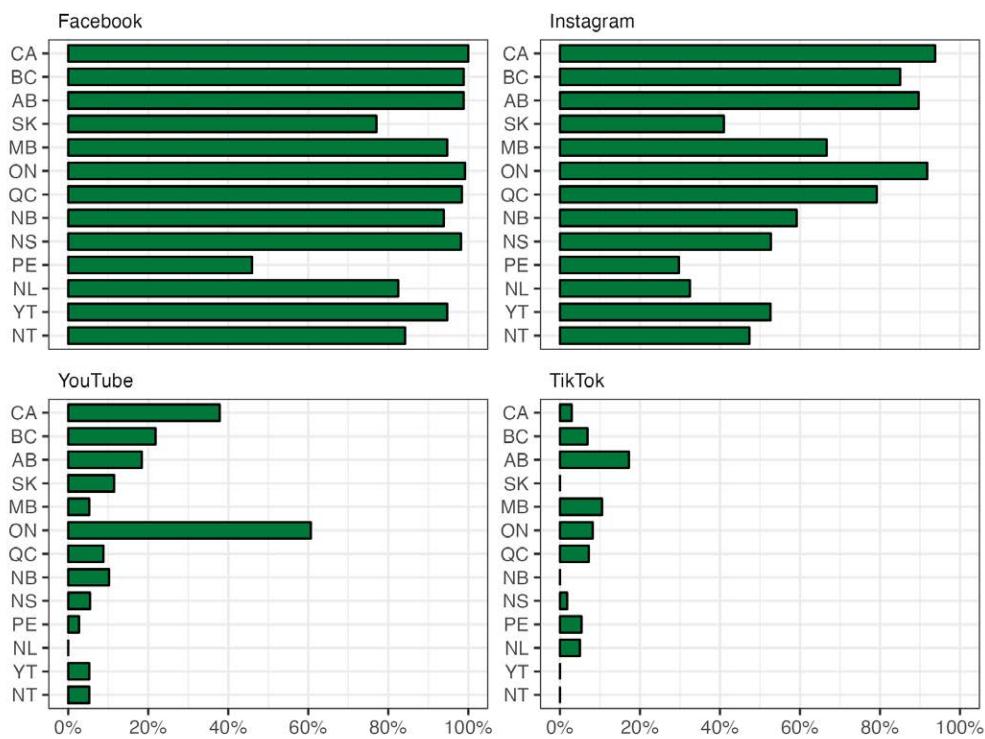
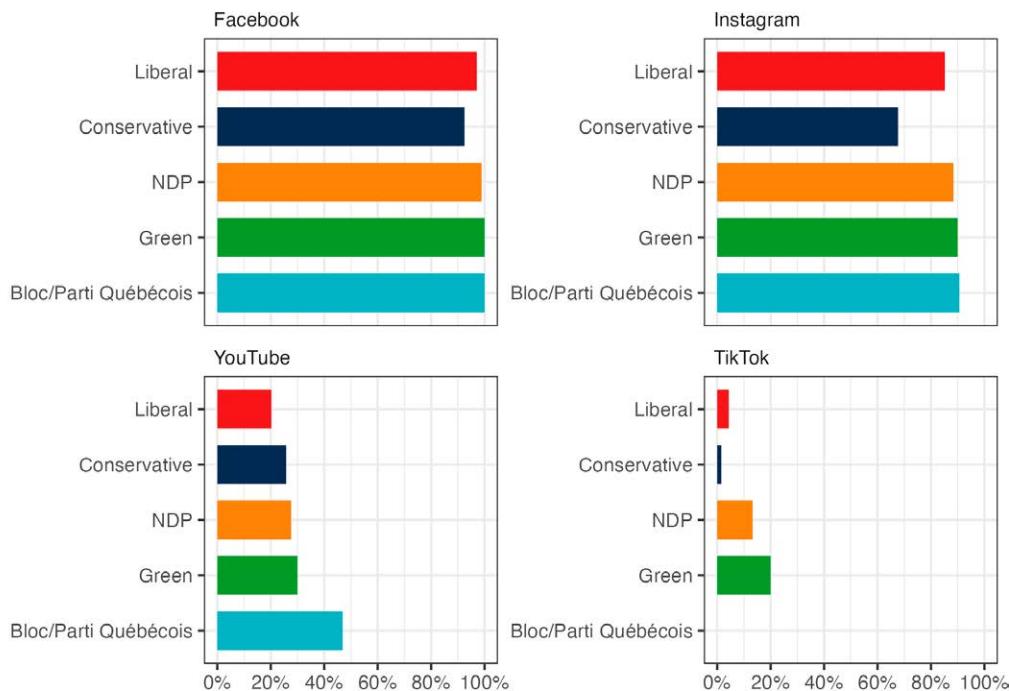
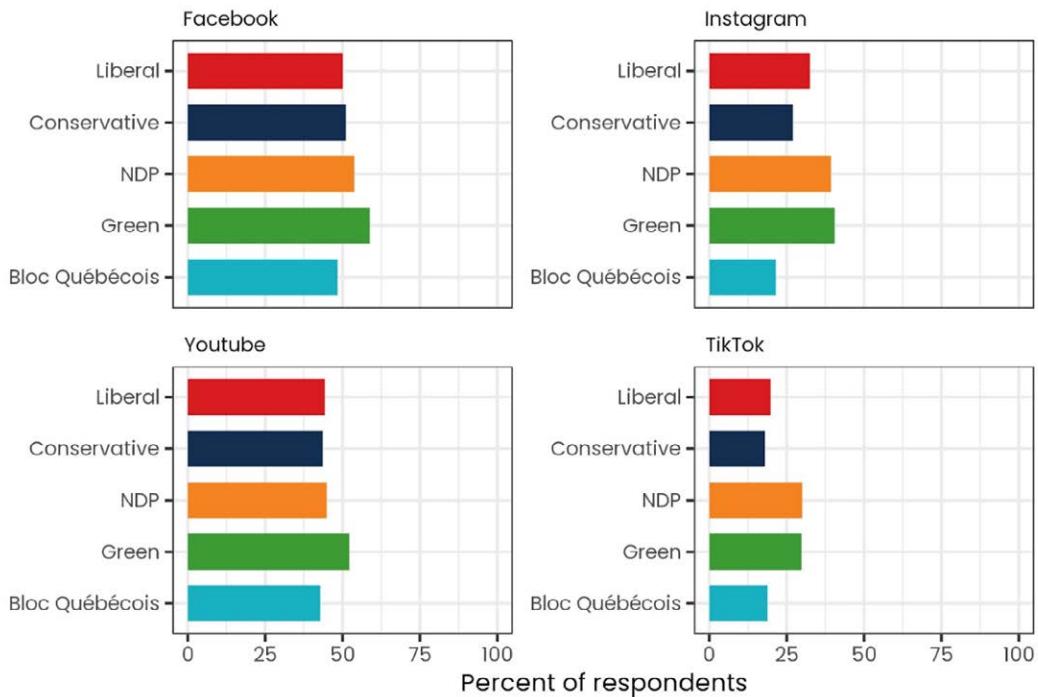


Figure 3.2: Social media use by federal and provincial politicians in Canada



Percentage of elected provincial and federal politicians (n = 1081), grouped by political party family, with social media accounts across the four platforms examined here.

Figure 3.3: Social media use by politicians in Canada (grouped by party family)



Note: Percent of respondents who get their news from various social media. Based on a survey conducted with 4,808 Canadians in 2023. Weighted for age, gender, and education.

Figure 3.4: Social media use for political news by federal partisanship.

to appeal to younger voters. The Bloc and Parti Quebecois politicians have a very consistent presence on Facebook, Instagram, and YouTube, likely reflecting a priority for those party organisations.

We can match these differences against nationally representative survey respondents (see Sections 4 and 7 for details about the exact surveys conducted). [Figure 3.4](#) displays the percentage of respondents that use Facebook, YouTube, Instagram and TikTok to get their news about politics in a large 2023 sample broken down by partisanship. We find very few differences in social media usage across party lines. Facebook is the most used platform to get political news for partisans from all political parties (followed by YouTube, Instagram, and then TikTok). NDP and Green supporters do report using Instagram (40%) and TikTok (30%) more than supporters from other parties. This concurs with the increased NDP and Green-party presence on these platforms, although politicians continue to severely underutilize YouTube and TikTok relative to where their audience is.

We can also produce similar plots for media organisations in Canada. See [Figure 3.5](#) for the social media footprint for 1009 Canadian news outlets, broken down by large national outlets (e.g. Globe and Mail, CBC) and smaller local outlets (e.g. Fraser Valley News Network). We observe here that the vast majority of National and Local outlets have a Facebook presence. Across the three other platforms, however, national news is far more likely to have social media accounts. Local news is thus primarily socially connected through Meta platforms (and again to a lesser extent through X/Twitter although no data is available here).

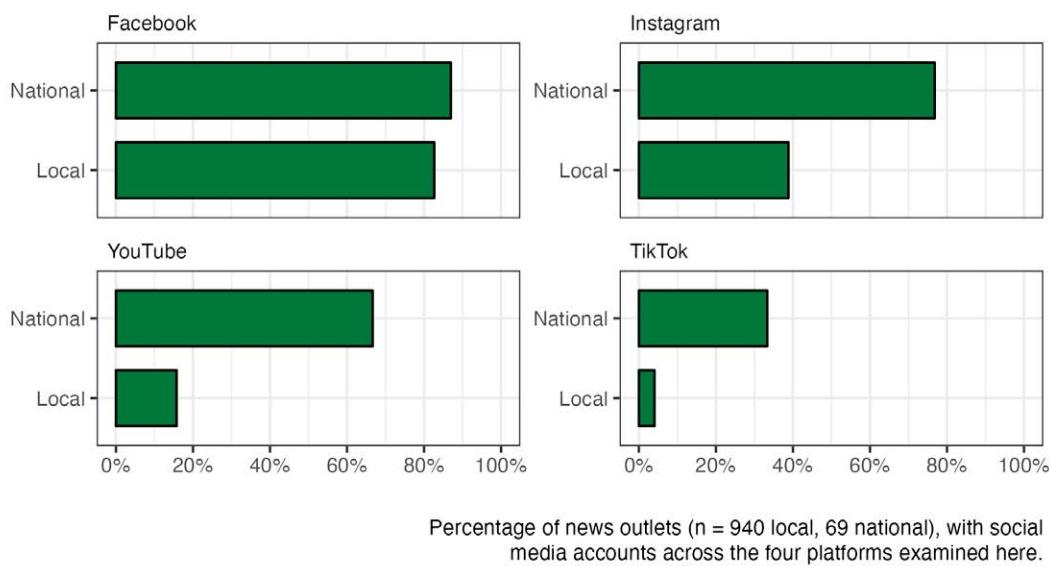


Figure 3.5: Percentage of Canadian news outlets active on social media platforms

3.2. CONCENTRATION AND FRAGMENTATION IN THE CANADIAN INFORMATION ECOSYSTEM

To evaluate the overall Canadian information ecosystem, we now conduct some exploratory analyses across Facebook, Instagram, YouTube, and TikTok, to obtain a preliminary reading on Canadian political discourse along the two dimensions introduced earlier: (1) concentration of influence and (2) fragmentation. For concentration, we draw on content engagement metrics for YouTube and TikTok to put hard numbers to the inequality among Canadian political influencers. For fragmentation, we draw on news sharing behaviour on Facebook among Canadian politicians, to assess whether geography or party is the primary organising principle. We then conduct two text classification exercises to categorise Instagram and TikTok posts by topic. Cross-tabulating topics by political party, we assess whether there appears to be a healthy degree of engagement across the political spectrum on all topics, or if parties talk past each other by focusing on separate topics. None of these exploratory analyses renders a definitive judgement on the nature of Canadian political discourse. Rather, they serve to demonstrate how, going forward, our observatory will be able to measure and ultimately characterise the discourse by taking discrete and regular snapshots.

3.2.1. Concentration of influence

As stated earlier, our data collection methodology exploits the fact that the media ecosystem is highly unequal, with an elite class of politicians, media outlets, and other political influencers, dominating the discourse. We now evaluate the extent to which, even among these political influencers, there is inequality of voice. There are many ways to measure concentration, not least by using network

centrality metrics. Here, however, we shall rely on Lorenz curves. Lorenz curves, and their associated Gini coefficients, are a widely accepted means of measuring inequality, particularly for macroeconomic analysis.²⁰ We demonstrate this approach for data from two platforms, YouTube and TikTok.

To construct a Lorenz curve of inequality among Canadian political influencers on YouTube and TikTok, we calculated for each account the share of all views garnered, and in each case sorted the data from smallest to largest. In a world of perfect equality, each account would have posted an equal share of content and received an equal share of views. Accordingly, in [Figure 3.1](#) the data would follow the 45-degree line.

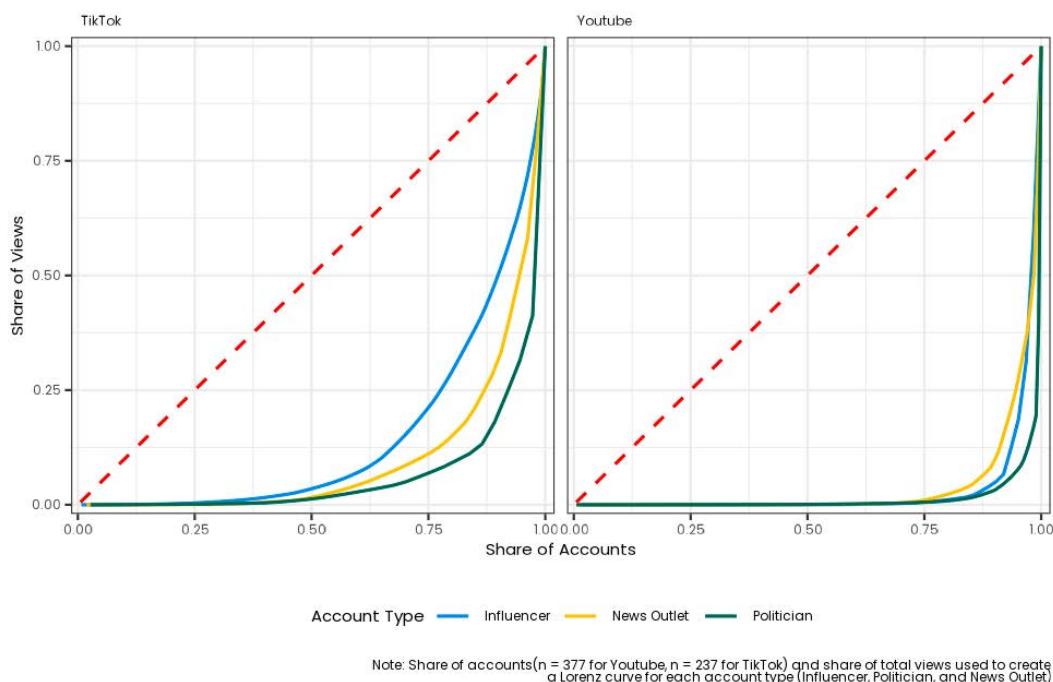


Figure 3.6: Lorenz curve's demonstrating inequality among Canadian political TikTok and YouTube accounts

As is evident from the figure, however, there is substantial inequality on both platforms. Instead of a 45-degree line, we observe Lorenz curves that start off at a low angle and then curve upwards as the high-percentile influencers garner the lion's share of views. We present the accounts in a disaggregated fashion, distinguishing politicians (green), news outlets (yellow), and social media influencers (blue). On both platforms and across all three categories of accounts, inequality is severe, with politicians on YouTube being the most severely unequal.

[Table 3.1](#) lists the top 10 most viewed YouTube accounts in descending order. To simplify, the share of all views, rather than the raw counts, are displayed. In

20 For example, Lorenz curves are used to visualise income inequality among Canadians. See: Wolfson and Murphy, "New Views on Inequality Trends in Canada and the United States".

the rightmost column, the shares of the middle column are successively added together to show the share of views acquired by the first, the first two, the first three, and so forth. Even though we tracked 377 YouTube channels (see Section 7 for how we chose these), the top ten most viewed channels garnered 71.2% of all views, and just the top four channels account for half of all views (50.6%). Global News and CTV dominated with 31.8% of views. Jordan Peterson and his daughter, Mikaila Peterson, together garnered 18.8% of views, or four times what CBC News obtained over the 9-month period. Such concentration of influence places incredible power to shape Canadian political discourse in the hands of just a few individuals and organisations.

Table 3.1: Top 10 most influential political accounts on Canadian YouTube

YouTube channel	Share of views	Cumulative share of views
Global News	18.7%	18.7%
CTV	13.1%	31.8%
Jordan Peterson	11.1%	42.9%
Mikaila Peterson	7.7%	50.6%
CBC News	4.6%	55.2%
SPORTSNET	3.9%	59.1%
Stephen Crowder	3.4%	62.5%
Pierre Poilievre	3.2%	65.7%
HELLO!	2.9%	68.6%
Toronto Sun	2.6%	71.2%

[Table 3.2](#) lists the top ten most viewed Canadian political TikTok accounts in descending order. As with YouTube, CTV, Global News, and CBC all make the shortlist. Cumulatively, the top 10 accounts garner nearly half of all views (48.2%). While influence among Canadian political TikTok accounts is more evenly distributed than YouTube (for whom, by comparison, the top ten garnered 71% of all views), it is still profoundly unequal.

Table 3.2: Top 10 most influential political accounts on Canadian TikTok

TikTok channel	Share of views	Cumulative share of views
CTV News	11.8%	11.8%
ET Canada	10.1%	21.9%
blogTO	4.5%	26.4%
CTV News Toronto	4.4%	30.8%
CBC News	4%	34.8%
Professor Neil	3.6%	38.4%
Global TV	3.1%	41.5%
FreshDailyCA	2.6%	44%
jaysgirl44	2.1%	46.2%
CBC	2.0%	48.2%

While we have described inequality in this section as “severe”, “profound”, or “substantial”, the reader may rightly wonder against what baseline we adopt these adjectives. Since we are importing the concepts of Lorenz curves and Gini coefficients from macroeconomics, there is currently no baseline by which to compare within the field of media research. At this point, therefore, we mean simply that Canadian political discourse on YouTube and TikTok is more unequal than are most economies in the world. Going forward, however, as we take successive snapshots of the Canadian media ecosystem, we will be able to measure how inequality is evolving. Insofar as this methodology is adopted by observatories of other countries, we will also be in a position to make cross-country comparisons.

3.2.2. Fragmentation

Next, we ask: to what degree is Canadian political discourse fragmented? We demonstrate two approaches to answering this question. First, drawing on content from Canadian politicians on Facebook, we extract domains from the captions of their posts and draw a network map to see whether politicians of different parties tend to reference the same or different domains. Second, as a separate exercise we classify the posts of Canadian political influencers on Instagram and TikTok into different topics of conversation to see whether different parties or sides of the political spectrum talk about the same or different things. As with our exploratory analysis of concentration, the reader should not interpret our analysis of fragmentation as a definitive judgement on Canadian political discourse, but rather as a demonstration of our capacity to objectively characterise and ultimately track the evolving character of Canadian political discourse going forward.

3.2.2.1. GEOGRAPHIC VERSUS PARTISAN CLUSTERING OF POLITICIANS ON FACEBOOK

The analysis presented here focuses on 1,074 Canadian politicians and media organisations active on Facebook. Data from any of the other platforms we are tracking can be similarly analysed, we simply choose Facebook as a proof of concept. Over a 9-month period starting from January 1, 2023, we collected 236,082 posts from these accounts. From these posts, we then automatically extracted all URLs mentioned, and parsed from these URLs the corresponding domains (websites). For example, if a politician shared a news article by CBC, the full URL would look something like <https://www.cbc.ca/news/politics/name-of-article>, from which we automatically identify the domain as *cbc.ca*.

The resulting dataset can be represented as a bipartite network in which politicians and domains are nodes, with directed edges connecting politicians to domains whenever they mention those domains. After obtaining an initial network of politicians with 6,264 nodes (879 politicians, 300 news domains, 5085 other domains) and 12,987 edges, we applied a filtering process to enhance the network's readability and focus. Specifically, we filtered domains based on their in-degree, retaining only those domains that were linked to by more than 5 politicians. This threshold emphasises nodes that have a substantial number of incoming links, signifying their significance and influence within the network. The filtered network provides a clearer representation, allowing us to concentrate on key actors and their connections. After filtering, we have 1,147 nodes and 6,530 edges in our network.

In the analysis process, we employ a technique called community detection within a network. This method automatically groups nodes based on certain patterns or criteria, aiming to uncover communities—clusters of nodes with more robust connections among themselves than with the wider network. The nodes are color-coded to visually represent their affinities. This automated procedure hinges on factors such as shared edge density, considering how many connections nodes have in common and their collective strength. To illustrate, consider politicians on Facebook. If they frequently reference the same domains in their posts, the algorithm tends to group them together, indicating shared characteristics in their online behavior. A specific algorithm known as the Stochastic Block Model (SBM) is chosen for its capability to identify implicit hierarchies among communities. Implicit hierarchies refer to underlying structures or relationships among communities that may not be explicitly defined but are discerned by the algorithm.²¹

21 The SBM constructs a hierarchical representation of these blocks, offering a high-level overview of the connectivity patterns of each individual media outlet. We leverage the degree-corrected version of this model, allowing us to create blocks that potentially encompass nodes spanning a wide range of degree intervals. Notably, our model also accounts for normalised edge weights, underlining the importance of considering the relative strengths of connections. See Peixoto, "Bayesian stochastic blockmodeling."

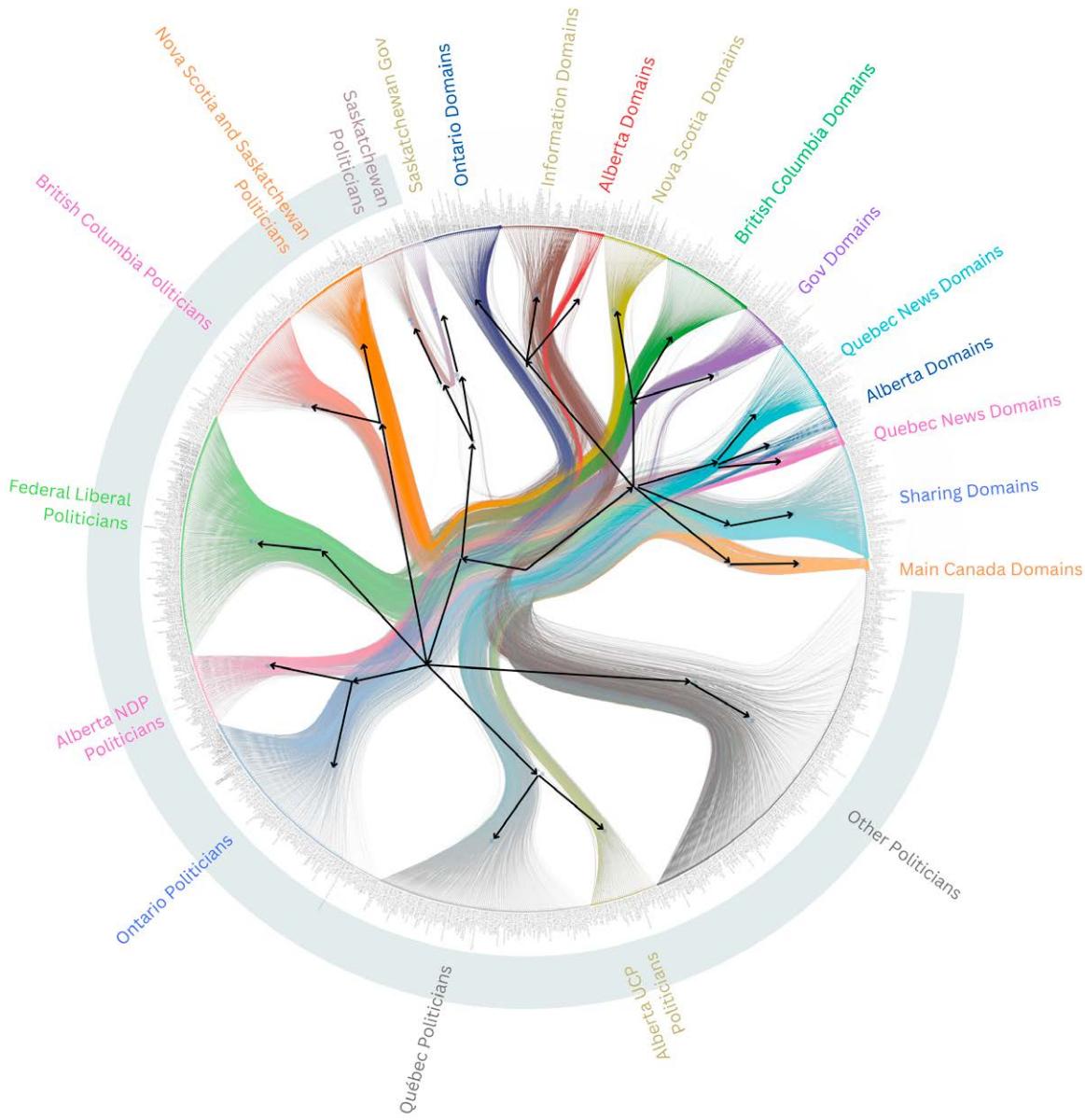


Figure 3.9: Nested stochastic block models (nSBM) showing the community structure of domain sharing between politicians on Facebook with edge bundling following the inferred hierarchy

In Figure 3.9, every node represents either a politician or a domain. The nodes (arranged in a circular layout) and edges (the branch-like shapes inside the circle) between them are colored based on the community identified through the nSBM algorithm, with manual labeling for clarity. At the top of this hierarchy, nodes are grouped into two communities: politicians and domains. However, delving into the subsequent tier of the hierarchy unveils interesting insights into how politicians themselves are categorized. Notably, politicians from Saskatchewan emerge as a distinct and tightly-knit community, often sharing domains specific to Saskatchewan (e.g., <https://www.scic.ca>, <https://tourismsaskatchewan.com>).

Descending further down the hierarchy, an exploration into the grouping of politicians across the nation comes to light. Remarkably, the grouping pattern

appears to align more closely with geographical location (province) rather than political party affiliation. For instance, members of the Ontario NDP are more inclined to share common domains with Ontario conservatives or liberals than with their federal NDP counterparts. This observation suggests that geographic considerations play a significant role in shaping the online affiliations of politicians, surpassing the influence of their party affiliations.

Furthermore, when studying the clustered domains, we notice that the domains themselves are grouped based on the province, indicating that the online presence of politicians is intricately connected to their geographical location.

We visualised this network also by using a standard network layout algorithm in Figure 3.10.²² Network layout algorithms position nodes relative to each other to produce a meaningful visualisation. The type of algorithm used in this case has the tendency to situate politicians closer together if they shared the same domains in their Facebook posts. In the visualisation, we tailored the node sizes to represent their ‘PageRank’ scores, a metric that identifies nodes with significant influence and prominence in shaping the network’s structure and information flow.

If the domain sharing behavior of Canadian politicians on Facebook were primarily correlated with party affiliation (e.g., members of governing parties may be more likely to share government links, or NDP politicians tend to share the same news stories), we would expect to see politicians from across the country forming clusters according to their party. However, rather than seeing an NDP cluster, a Liberal cluster, and a Conservative cluster, we see clustering based on province. This provincial affiliation is particularly profound in the case of Saskatchewan, who’s provincial representatives act so distinctly that they create their own level 1 cluster.

Our community detection exercise suggests that Canadian politicians are more engaged with politicians from their province than with politicians who share their ideological alignment. At least from this view, geography appears to dominate partisanship and ideology. One notable exception to this rule is found in Alberta, where members of the two dominant parties (UCP and NDP) seldom overlap in domain sharing behaviour.

3.2.2.3. PARTISANSHIP BY TOPIC

The sharing of external content via domains is an important dimension, but domains are just one type of text entity among many. As an alternative approach, we can rely on large language models (LLMs) to read the text captions of each politician’s social media posts and classify them according to topics of recurring interest to Canadian politics – the environment, crime, inflation, indigenous rights, and so forth. This helps us see what each politician is talking about, from which we can aggregate up to see what each party is talking about. If different parties talk

22 We used the Force Atlas 2 layout in Gephi.

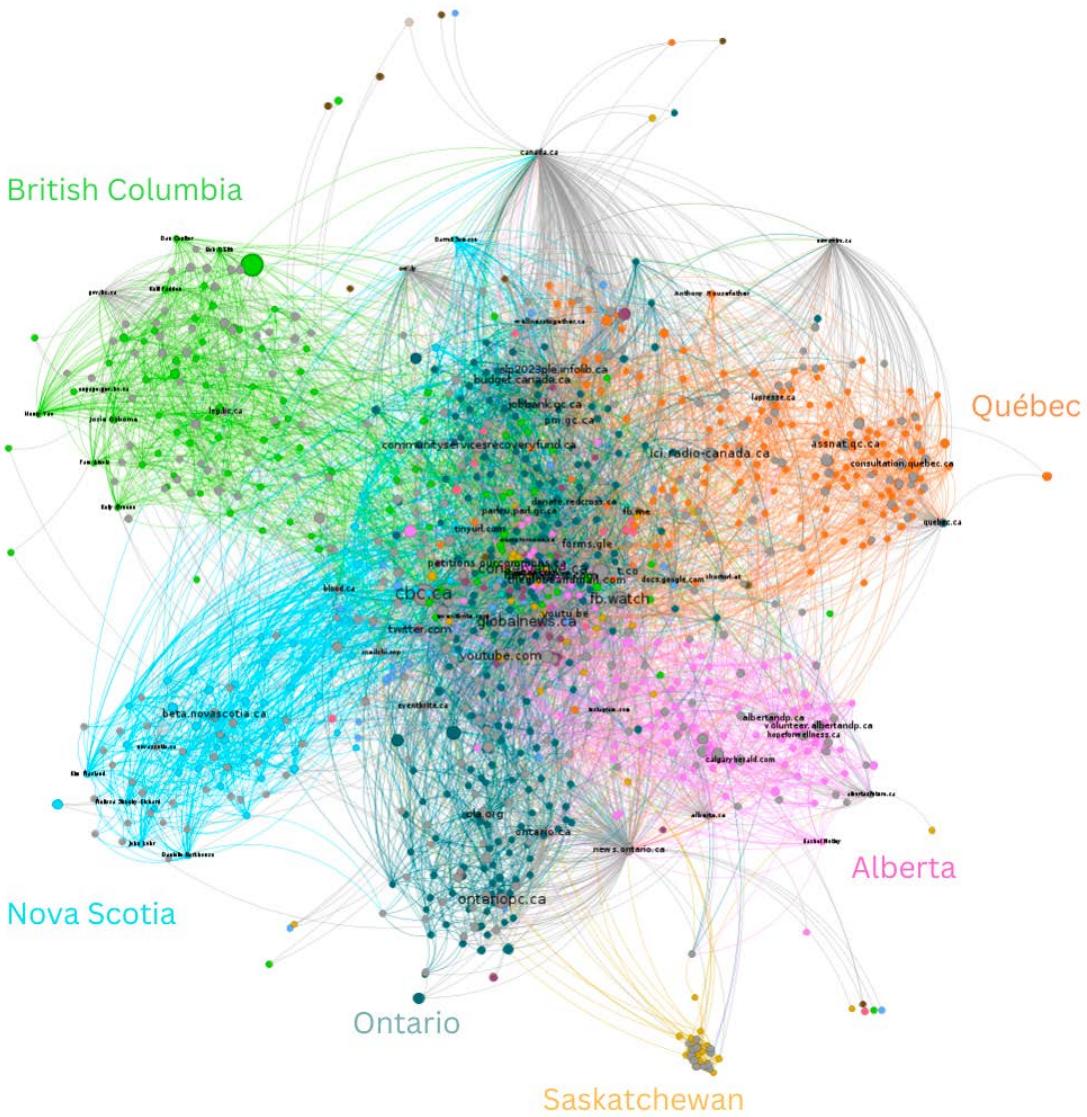


Figure 3.10: Community structure of domain sharing between politicians on Facebook

about the same topics, it likely implies that multiple viewpoints are represented, and the topic may enjoy a robust level of debate. If, however, parties tend to dwell on different topics, it implies they are talking past each other. As such, topic classification of politicians' social media posts offers us further leverage on the question of fragmentation.

INSTAGRAM

We pursued two approaches to labelling the text captions of Instagram posts published by politicians. On the one hand, we pursued zero-shot, supervised classification. This means we defined a list of topics we deemed salient to Canadian political discourse for the study period January 1, 2023–September 30, 2023, and used a pre-trained LLM to label only posts the model was confident belonged to one of our pre-specific topics.

On the other hand, we performed unsupervised topic modeling. Topics or themes can be fairly summarized by co-appearing vocabulary—for example, the words “housing, mortgage, interest rates, affordability, Vancouver, subsidize” may tend to co-appear on social media in conversations about Canada’s housing affordability crisis. Topic models are algorithms that can search through hundreds of thousands of social media posts and methodically unearth topics by detecting co-appearing vocabulary that resurfaces across many posts. A human expert can then read the various lists of vocabulary identified by the algorithm and give a name to the topic (eg. “housing crisis”).

ZERO-SHOT CLASSIFICATION

Through an iterative, experimental process, we arrived at the following list of topics (in no particular order): *International, Government, Health, Indigenous, Crime, Environment, Misinformation, and Inequality*. We then performed zero-shot learning with a pre-trained large language model (LLM) to predict whether the text caption of each social media post belonged to one of the topics. Posts judged coherent by the LLM but unrelated to any of the defined topics were categorised as *Other*. Posts for which the model’s confidence fell below a threshold were not assigned any label, so as to minimise the risk of spurious correlations. In all, we attempted to label a random sample of 50% of Instagram posts, amounting to 116,773 posts. For 70.5% of the posts, the model’s confidence fell below a threshold for labelling. For a further 10.2% of posts, the model was confident they pertained to salient topics that fell into the *Other* category. The remaining 22,548 posts were assigned to one topic each.

Of the 22,548 labelled posts, just over half (11,999) were published by politicians. In [Figure 3.11](#) We present the percentage of posts devoted to each topic by

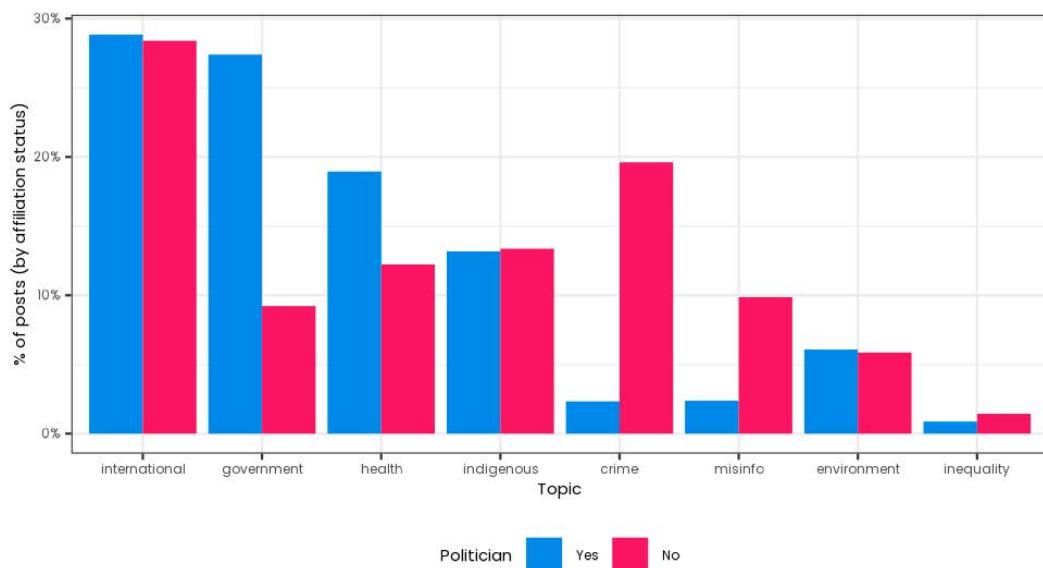


Figure 3.11: Topic categorized instagram posts from politicians and other political influencers

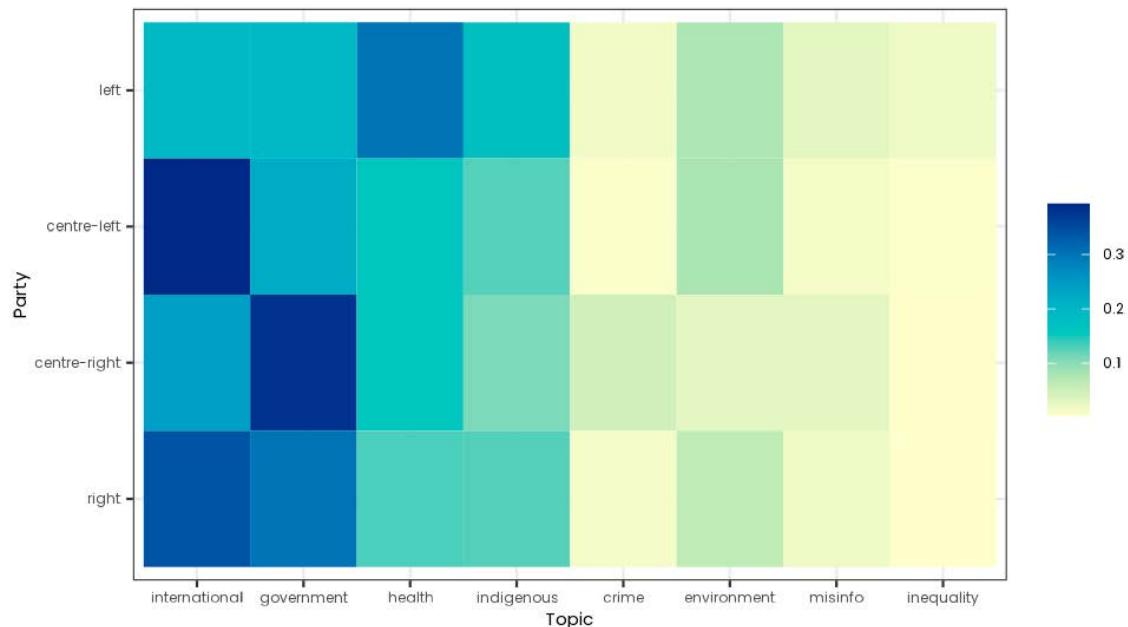


Figure 3.12: Cross-tabulation of political spectrum and topics

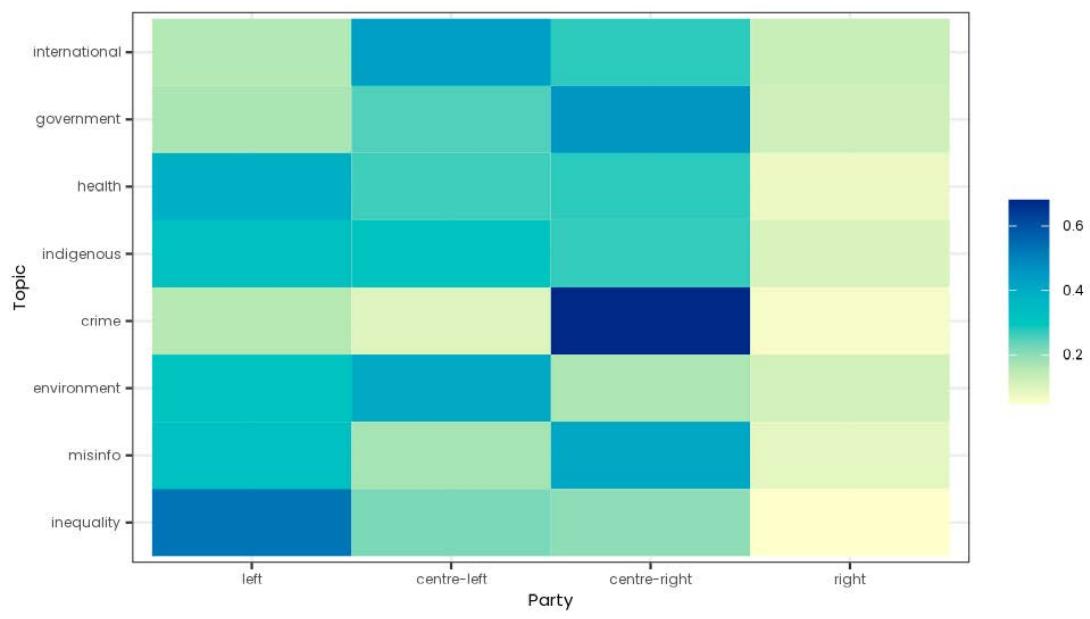


Figure 3.13: Cross-tabulation of topics by political spectrum

politicians versus non-politician accounts. Several substantial disparities emerge. Predictably, politicians talk about *Government* far more often than do non-politicians. On the other hand, non-politicians speak far more about *Crime* and *Misinformation* than do party-affiliated seeds.

For politicians, we can further disaggregate labelled posts by party, allowing

us to cross-tabulate parties and topics. This lets us answer two questions: per topic, how were parties represented? And per party, how much did they dwell on each topic? To display all this information succinctly we rely on heatmaps to cross-tabulate parties and topics. (Figures 3.12 and 3.13). Between federal and provincial levels of government there are many different parties, which would render heatmaps illegible. For clarity's sake, albeit at the cost of nuance, we aggregated parties into four positions on the political spectrum: left, centre-left, centre-right, and right.

[Figure 3.12](#) shows us how the political spectrum spent its narrative potential on Instagram over 2023. The Left spoke more about *Health* than any other single topic, while the rest of the political spectrum gave emphasis to *International* and *Government* issues. All gave comparatively short shrift to *Inequality*, *Crime*, *Misinformation*, and *Environment*.

[Figure 3.13](#), on the other hand, shows how the political spectrum was represented on each topic. On the topics of *Health* and *Inequality*, for example, the Left dominated. The Centre-Left, by comparison, led the discourse on *International* and *Environment* issues. The Centre-Right dominated the conversations around *Government*, *Crime*, and *Misinformation*. The Right was a negligible contributor to all topics.

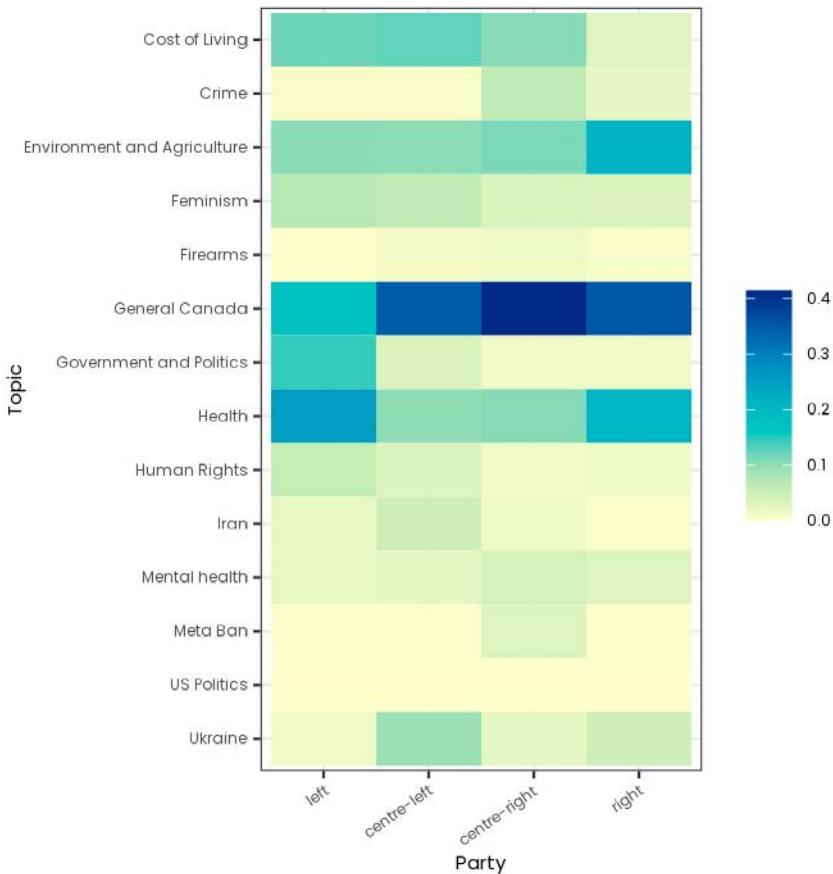


Figure 3.14: Topic Shares by Party on Instagram

UNSUPERVISED EXERCISE

We also did unsupervised topic modelling on our Instagram captions, to discover latent topics in the text. Here we show the shares of what topics accounts associated with different Canadian political parties engage with. We have removed incoherent topics or topics highly unrelated to Canadian politics, and use a pseudo-logarithmic scale to allow engagement with smaller topics to be apparent.

We see engagement with many topics, particularly the environment, health, the cost of living (specifically housing and childcare), and Ukraine. We see broad engagement with all these topics from party politicians (both provincial and federal) across the political spectrum, suggesting they often use Instagram to share their political views and promote their platforms. This consistent representation of a variety of views for various prominent topics suggests the presence of healthy political debate on Instagram, at least among politicians—a good sign for the Canadian media ecosystem.

TIKTOK

We also uncovered latent topics in TikTok video captions, and again have shown the extent to which videos from different party associated accounts engage with those topics.

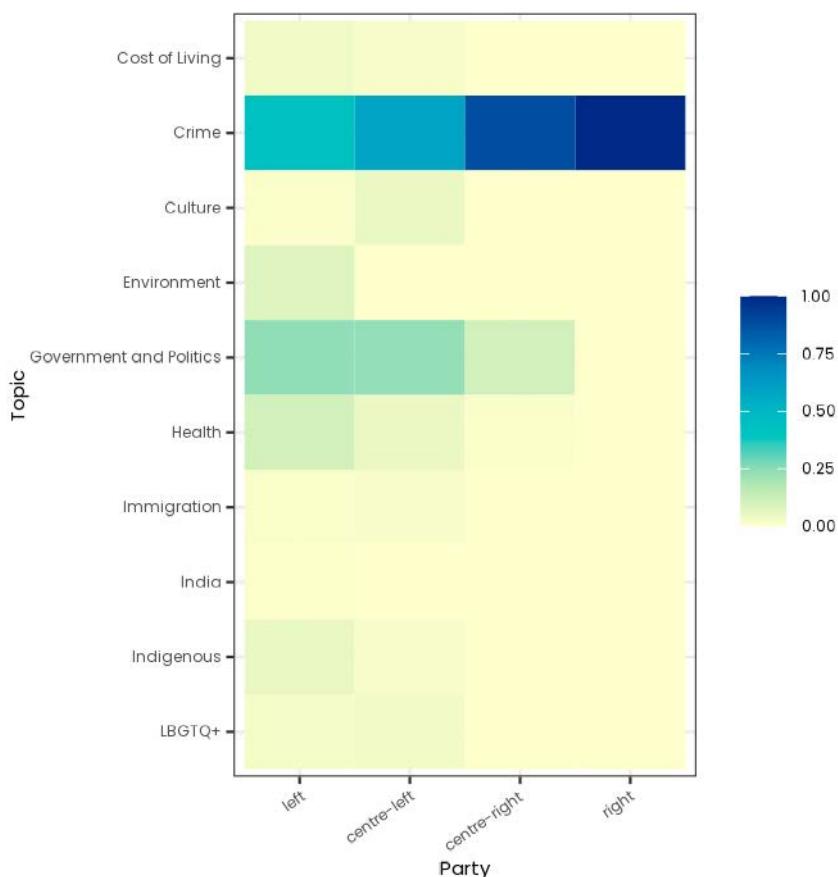


Figure 3.15: Topic Shares by Party on TikTok

We see a different situation on TikTok compared to Instagram, with left and centre left accounts dominating topic engagement, and very little engagement with prominent topics by right-leaning politician accounts. Note that this reflects a low number of right-leaning politician accounts, see [Figure 3.15](#) above. The Canadian landscape on TikTok is thus skewed towards the left, meaning that politically engaged Canadian TikTok users are more likely to see content from left-wing politicians than any other kind. This imbalance is likely due to the greater representation the left has on TikTok.

4. Canadians in their information ecosystem

Using survey data, this section focuses on how Canadians engage with the ecosystem, their information consumption patterns, and how their media consumption behaviour has changed and remained the same since 2018.

We find:

1. Most Canadians are inattentive to politics. On average, Canadians do not frequently consume news, have low levels of political knowledge, and have low awareness of important political figures in Canada.
2. News consumption patterns have been generally stable in the last five years. We observe remarkably few major shifts in what and how people consume their news. However, trust in traditional media has experienced a marked decline in the past five years.
3. People with high levels of political knowledge are more likely to have heard of conspiracy theories, but at the same time, they are more likely to be able to identify their falsehood.
4. How, and where, people get their news is strongly associated with important political attitudes and behaviours. We observe that traditional media users are more trustful and more likely to support government assistance for media. Social media users are less trustful of media outlets and are less likely to participate in politics. When they do participate, it is mostly online.
5. Canadians agree about journalistic ethics standards in Canadian media, that misinformation is an important problem, and that both the government and social media platforms should take action to reduce the prevalence of false information.

We examine Canadians' media consumption habits using data from 2018 ($n = 2,841$) and 2023 Canadian Information Ecosystem ($n = 4,808$) surveys. Our analysis highlights three elements of the state of the Canadian media ecosystem. First, individuals' self-reported news consumption and attitudes have been generally stable in the last five years. Second, we find that most Canadians are inattentive to politics. Third, we show that how, and where, people get their news is strongly associated with key political attitudes. The information ecosystem matters for Canadians' opinions.

4.1. INFORMATION CONSUMPTION AND MISINFORMATION IN CANADA

First, we examined the state of the information ecosystem by assessing media consumption habits/preferences, trust in media, exposure to misinformation, and policy preferences for government intervention regarding the management of misinformation in Canada.

Using a common set of questions across the two surveys at two different timepoints, we can provide insight into major shifts in information consumption and belief patterns that have occurred over the past five years. Over the last five years, on average, Canadians prefer to receive political news content from social media, rather than traditional news media sources. Likewise, our data suggests declining trust in traditional media outlets among Canadians, but overall trust in media remains generally high in both samples. We find a significant decline in the

use of Facebook and an increase in Instagram and TikTok for political news. In a matter of years, TikTok has become an important source of political information for Canadians and thus heavily disruptive of the information ecosystem. Tiktok's increasing popularity is almost entirely driven by extremely high usage among young respondents.

Moreover, using a novel set of questions evaluating attitudes and knowledge in 2023, we provide a snapshot of current attitudes. We observe that exposure to misinformation is limited and that few citizens believe them to be truthful. However, we find that, among Canadians who have been exposed to a conspiracy theory, about half believe that they are truthful. We conclude that the Canadian news ecosystem continues to be generally resilient to misinformation and conspiracy theories.

Regarding the policy preferences concerning misinformation, we found significant levels of agreement among Canadians. Respondents acknowledge that misinformation is a pressing issue, and they support both the government and social media platforms to take action to reduce its prevalence online. Furthermore, they support government intervention in monitoring misinformation online to reduce exposure. This broad normative consensus is consistent across all types of news consumers and samples.

4.1.1. Typologizing Canadian Political News Consumption

A key difference between Canadians is what, and how, they consume political news. For instance, some Canadians prefer to receive political news only from social media. This typology is intended to provide context for measuring political news consumption and exposure to different media environments. We grouped Canadians into four categories:

1. News Avoiders (~40%): Canadians who are not interested in consuming political news, and are therefore not exposed to political news media.
2. Social Media Users (~20%): Canadians who prefer to receive political news media from social media sources, rather than traditional media.
3. Traditional Media Users (~30%): Canadians who prefer traditional news media to social media.
4. Diverse Media Users (~10%): Canadians who receive their news from both traditional sources and social media.

We find that Traditional Media Users and Diverse Media Users are highly similar in trust and attitudes toward the media. They are notably more trustful of media than news avoiders and more in favour of governmental actions to support news outlets. Traditional media users are also more likely to report engaging in physical forms of political participation (e.g., participating in a protest) than social media users and news avoiders.

Social media users are, on average, less trustful in media organizations than traditional and diverse users. These results suggest that the decline in trust

observed may be partially due to individuals' media consumption and exposure. While the exact reasons behind this shift require further investigation, these findings may suggest that the dynamics of the social media ecosystem have evolved over the last five years, potentially leading to different attitudes and levels of trust in news organisations. It is plausible that social media users are more exposed to critical views of traditional media, leading to less trust in this organisation. Another possibility is that the nature of social media news consumption is different from traditional media in the sense that consumers engage less cognitive resources to understand.

We find that news avoiders exhibit lower political engagement, underscoring the crucial role of news consumption in political participation.

4.2. CHANGES IN THE MEDIA ECOSYSTEM: A FIVE YEARS RETROSPECTIVE

In recent years, the Canadian media ecosystem has been perceived as fairly resilient to threats like misinformation and disinformation. For instance, a previous Media Ecosystem Observatory report showed that while some misinformation and disinformation exist in the ecosystem, it has had limited effects on elections and Canadian attitudes and behaviours more broadly.²³ Canadians have demonstrated relatively homogeneous preferences (i.e., highly similar) for the types of media they consume and have expressed high trust in their news organizations, reducing the potentially detrimental effects of misinformation such as fostering un-informed decisions, eroding trust and increasing polarization.²⁴

However, the latest national and international ecosystem changes may cast doubt on this picture. The 2023 Reuters Institute Digital News Report shows that trust in media has declined in the last five years.²⁵ This fall in trust is often linked to polarisation, where people get their news from increasingly partisan outlets, fueling echo chambers where citizens mostly hear opinions they already hold.²⁶

Some Canadian scholars argue that Canadian society is becoming increasingly polarized.²⁷ Mixed with the observed decreasing trust in media, it is unclear what the media ecosystem looks like in 2023. What do people consume? Which media outlets do Canadians trust? How have these trends changed in the last few years?

To answer these questions, we conducted a five-year perspective of the

23 Bridgman et al., "Mis- and Disinformation during the 2021 Canadian federal election".

24 Loewen et al., "What do Canadians want from their news?"; Bridgman et al., "Lessons in resilience: Canada's Digital Media Ecosystem and the 2019 Election".

25 Newman et al. "Reuters Institute Digital News Report 2023".

26 Bail et al., "Exposure to opposing views on social media can increase political polarization"; Quattrociocchi et al., "Opinion dynamics on interacting networks: media competition and social influence".

27 Johnston, "Affective Polarization in the Canadian Party System, 1988–2021."; Merkley, "Mass Polarization in Canada: What's Causing It? Why Should We Care?"; Bridgman, "The Role of Social Media in Polarizing Canadians".

media ecosystem. Using data collected in 2018 and 2023, we compared findings to understand the nature of the Canadian media ecosystem and how it has changed in the past five years. This analysis allows us to assess what has remained stable and what has changed in recent years.

4.2.1. What News Sources Do Canadians Use and How Frequently Do They Use Them?

In this section, we are interested in mapping individual news sources and how people use them. To examine Canadians' media consumption, we rely on two questions. First, how much they look at traditional media by measuring their visit frequency of Canadian and International news outlets' websites and their subscriptions to these same media. Second, we measured how much they use non-traditional forms to consume political news (i.e., social media).

We first asked Canadians where they get their news online, and how often they engage with it. Respondents taking the survey in English were asked about national outlets (CBC, The Globe and Mail, National Post, The Toronto Star, Rebel News, and the Toronto Sun) and news organisations from the United States (New York Times, Wall Street Journal, CNN, and Fox News) and the United Kingdom (BBC and The Guardian). French speakers were displayed Francophone national and important regional outlets (Radio-Canada, LeDevoir, LaPresse, Le Journal de Montréal, Le Journal de Québec, TVA Nouvelles) and international outlets from the United States (New York Times, Wall Street Journal) and France (Le Monde).²⁸ Figure 4.1 presents the mean consumption for these media outlets in 2018 and 2023 by visit frequency (rarely or never, once a month, once a week, and every day).

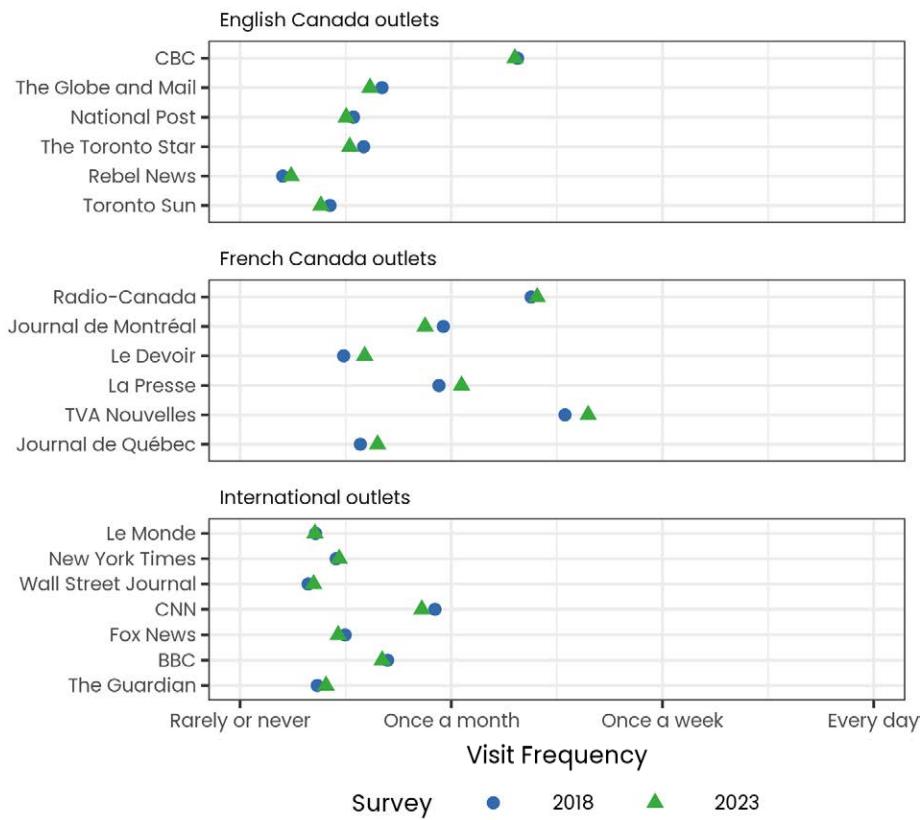
Our results demonstrate that most Canadians do not frequently consume online news.²⁹ Indeed, the mean consumption rate of most outlets is between rarely and once a month, except CBC, Radio-Canada and TVA Nouvelles, which respondents consume more on average (between once a month and once a week).

We also observe stability in consumption between 2018 and 2023. There are very few differences in mean consumption between the surveys and no shift between categories. With the important caveat that these are self-reported consumption measures, traditional news websites continue to be consumed at the same rates as five years ago.

Next, we looked at non-traditional types of news consumption. Participants in our surveys were asked to select which (if any) social media they use to get their news. Social media platforms included Facebook, Youtube, Instagram, Twitter, LinkedIn, Reddit, Snapchat, Whatsapp, and TikTok (only in 2023). Figure 4.2 shows that the overall proportion of respondents using different social media platforms to get political news slightly increased between 2018 and 2023.

28 These outlets were selected by the research team to ensure mapping of the media ecosystem of both English and French-speaking Canadians.

29 Our data also shows that the trend is similar for newspaper readership.



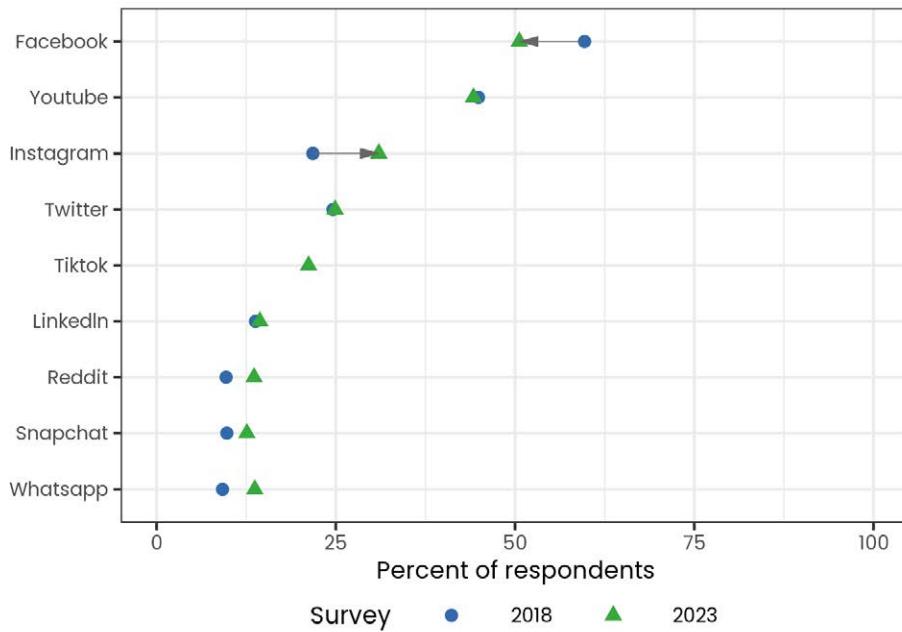
Note: Percent of respondents who get their news from various media outlets. Based on a survey conducted with 7,649 Canadians in 2018 (N = 2,841) and 2023 (N = 4,808). Weighted for age, gender, and education.

Figure 4.1: Online media consumption in the 2018 and 2023 surveys

In both surveys, Facebook is the most popular social media website for consuming news, with 59.7% and 50.6% of the sample using it to stay informed in 2018 and 2023, respectively. However, it is important to note that Facebook usage decreased by nine percentage points, representing a significant drop between 2018 and 2023 ($p < 0.001$).³⁰ Instagram's increase (from 21% in 2018 to 31% in 2023) in usage is also statistically significant ($p < 0.001$). Many respondents also report using YouTube (44%) and Twitter (24%) to get political news. These did not appear to increase over our two surveys. We also note the importance of TikTok in individuals' media ecosystem: 21% of the sample reported using it. In a matter of years, TikTok became important for Canadians as a source of information, potentially disrupting the ecosystem.

We find three movements in the data: an increase in the use of Instagram and TikTok and a decrease in Facebook usage. These shifts can partially be explained by usage by the age category of respondents. Indeed, we observe an important

³⁰ While we think this result generalizes to overall trends in Canadian usage of social media to stay informed, it is important to note that the survey was fielded before the Meta news ban. It is therefore unclear how this usage was affected by Meta's new policy at the user level. However, our digital data was able to assess the effect of this ban on the outlet's social media presence. See the methodological details appendix. Case Study: The Meta News Ban.



Note: Percent of respondents who get their news from various media outlets. Based on a survey conducted with 7,649 Canadians in 2018 (N = 2,841) and 2023 (N = 4,808). Weighted for age, gender, and education.

Figure 4.2: Social media used to get political news.

gap between Canadians who are less than 25 and their elders. Young Canadians report using different social media platforms to stay informed. The most used social media for people under 25 are Instagram (50% in 2018 and 65% in 2023), YouTube (65% and 57%), TikTok (62%) and Facebook (62% and 47%). The picture is different for older Canadians: the most used platform for all the other age categories is Facebook (around 60%), followed by YouTube (43% on average), Instagram (21%) and TikTok (16%). Young Canadians, therefore, use more and different platforms to stay informed about politics. The best example is TikTok: 62% of people under 25 in our sample report using it to get political news, while this proportion is only 16% of Canadians older than 25, a 46 percentage point difference.³¹ Overall, we find that age shapes how and which social media Canadians use to stay informed, echoing previous results.³²

We observe that individual media consumption consists of a blend of traditional and social media sources. How do people interact with these media sources? What type of users are they? We employ **typology of four types of news consumers**. Each type describes a level of engagement with news and the information ecosystem. This measure allows the examination of the influence of different types of media consumption on individuals' attitudes and behaviours.

31 We also note important divisions between ages in TikTok usage as 38% of people between 25 and 34 use it, 14% between 35 and 44, 22% between 45 and 54, 6% between 55 and 64, and 2% over 65 years old.

32 Bridgman et al., "Indistinct Information Habitats: Information and Attitudes in the 2023 Alberta Election".

Using self-reported online and paper news consumption as well as social media usage to stay informed about politics, we created an index of how much each respondent used (1) media websites, (2) physical newspaper subscriptions, and (3) social media to stay informed. For example, if a participant reports looking at CBC and the New York Times in the online news consumption question, their score is 2. Mean usage for websites is 2.8 ($SD = 3.6$, max = 17), 2.25 for the number of social media used ($SD = 2$, max = 10), and 0.38 for paper subscriptions ($SD = 0.9$, max = 10). We then standardised each of these variables³³ and created the typology.

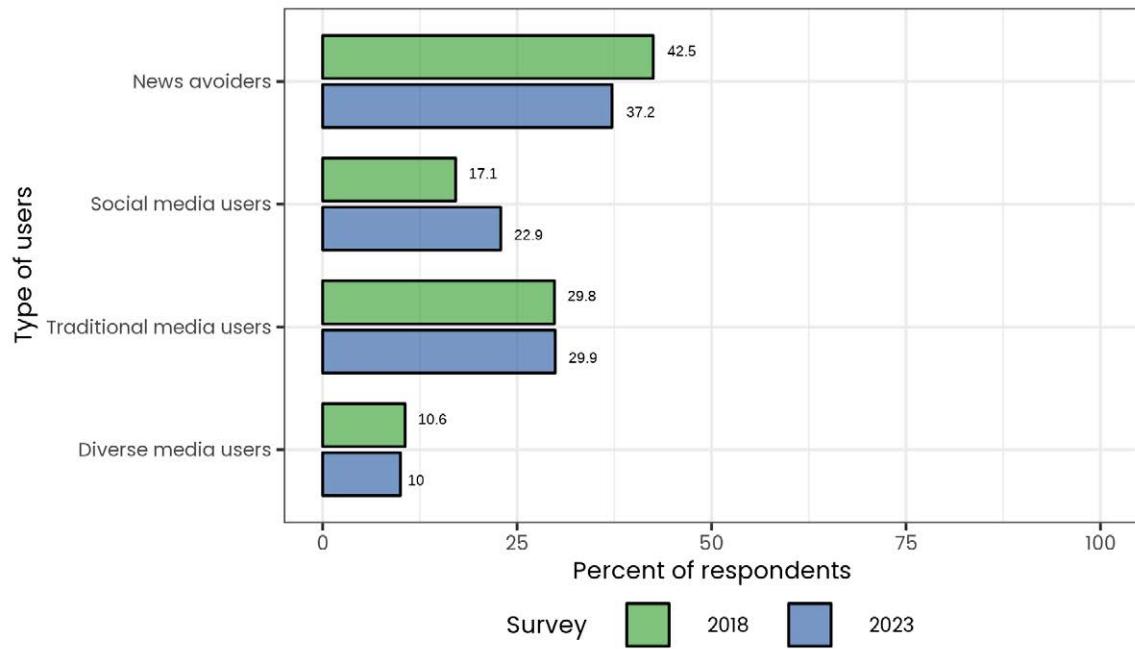
[Figure 4.3](#) displays the distribution of each user type across the surveys. First, it shows **news avoiders**, which refers to individuals below the consumption mean for all three categories (online, paper, and social media). These individuals constitute 39% of the sample and represent a group minimally exposed to the news. Second, **social media users** constitute 20% of the sample and represent people who use social media more than traditional outlets (online or paper) to stay informed (conditional on not being a news avoider). Third, **Traditional media users**, who represent 30% of the sample, use more traditional methods than social media. Finally, **diverse media users** are people for whom there are no meaningful differences in usage between traditional streams and social media (10% of the sample). With this method, we aim to measure consumption and exposure to different media environments and how they may influence individuals' attitudes.

4.2.2. Political Knowledge

To increase our understanding of the Canadian media ecosystem, we evaluated the relationship between individuals' media consumption and their levels of political knowledge. We are motivated to do this due to the possibility that people who consume equal amounts of news but use different sources may obtain different levels of political knowledge. Hence, we want to examine whether people's usage influences their level of political knowledge.

We asked survey respondents five skill-testing political questions (e.g., what is the name of the Federal Finance Minister) to measure political knowledge. Overall, **we find a significant decrease in political knowledge in the last five years (8 percentage points, $p < 0.001$) across news consumer types**. Across both surveys, there are no significant differences in knowledge between news avoiders, diverse, traditional, and social media users. Thus, this decline may also be due to other unmeasured confounders. While the decrease is substantial, it may be in part due to measurement error. If there difference is not attributable to measurement error, it suggests a substantial and perhaps critical decrease in political knowledge.

³³ Standardization is a method used to normalize data. The goal is to transform the scale of each variable to a common reference point to allow easy comparisons. To standardize, we subtracted individuals' values by the group mean and then divided by standard deviation. The output is that all variables have a mean of 0 and a standard deviation of 1.



Note: Percent of respondents by user types. Based on a survey conducted with 7,649 Canadians in 2018 (N = 2,841) and 2023 (N = 4,808). Weighted for age, gender, and education.

Figure 4.3: Types of Users by Surveys

4.2.3. Trust in Media

Previous findings demonstrate Canadians have high trust in news media.³⁴ Yet, the *2023 Reuters Institute Digital News Report* shows how trust in media has declined in the last five years in Canada. This section examines this question by comparing Canadians' trust levels for 29 media outlets between 2018 and 2023.

Respondents taking the survey in English were asked about national outlets (CBC, The Globe and Mail, National Post, The Toronto Star, Rebel News, The Toronto Sun, APTN News and Maclean's) and news organizations from the United States (New York Times, Wall Street Journal, CNN, Vice, Breitbart, and Fox News) and the United Kingdom (BBC and The Guardian). French speakers entering the survey were also displayed national outlets (Radio-Canada, LeDevoir, LaPresse, Le Journal de Montréal, Le Journal de Québec, TVA Nouvelles, Journal Métro, 24 Heures, and L'Actualité) and international outlets from the United States (New York Times, Wall Street Journal) and France (Le Monde, Libération and Figaro). People were asked to rate how much they trust news organizations on a three-point scale (choices: not at all, somewhat, and very much).

Figure 4.4 shows the mean trust level for each media outlet across both surveys. The first thing to note is that our findings align with existing research on trust, as general trust in media appears to be relatively high among Canadians. Most respondents in both samples report trusting media organizations either somewhat or very much. While we observe some low trust for certain media

34 Loewen et al., "What do Canadians want from their news?".

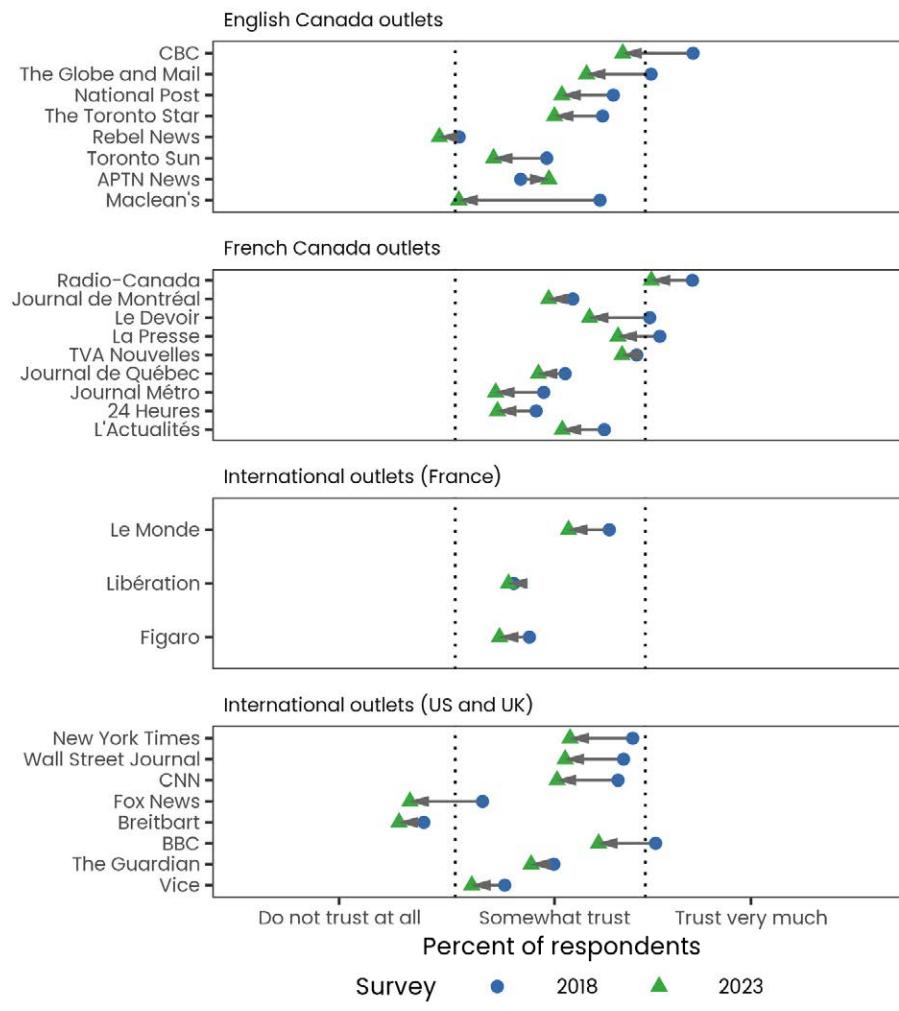


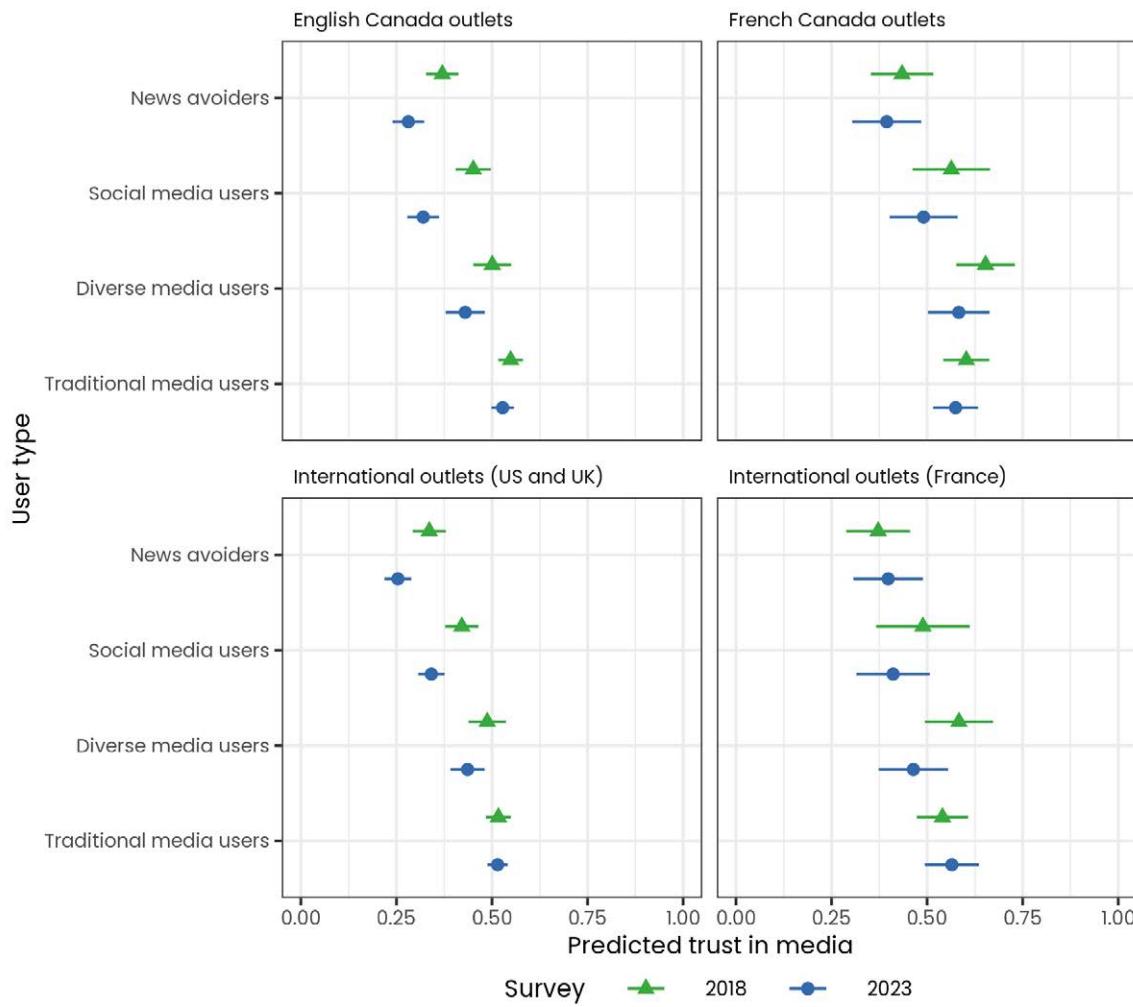
Figure 4.4: Trust in Media

(e.g., Breitbart, Fox News, Rebel News or Macleans') and high for others (e.g., CBC, Radio-Canada, LaPresse or BBC), most trust levels are centred around the "somewhat" category. However, our findings also suggest that overall trust has in fact declined over the past five years. We see a significant decline in the last five years, where people are inclined to trust news organizations. Importantly, this decline occurs across a very large number of organizations and not only in Canada.

What explains these trust levels? We examine how user consumption type may influence trust levels in news organizations by using Ordinary Least Square regression. This technique helps us examine how media consumption shapes trust in national and international outlets more closely.³⁵ Each point in Figure 4.5 represents the predicted trust levels (from 0 [low trust] to 1 [high trust]) by user type.³⁶

³⁵ The dependent variable is an index of media organisations for the four ecosystems (English Canada, French Canada, US and UK, and France). Since French and English speakers were not displayed the same news outlets, we created different variables conditional on the respondents' language.

³⁶ Regressions control for age, gender, education and provinces.



Note: Prediction from a linear regression predicting trust in media by user type, while controlling for age, gender, education and province.
Based on a survey conducted with 7,649 Canadians in 2018 (N = 2,841) and 2023 (N = 4,808). Weighted for age, gender, and education.

Figure 4.5: Effect of user type on trust in media

The effect of user type on trust is consistent and significant in 2018 and 2023. For both samples, user type explains trust in news organizations: compared to news avoiders, diverse and traditional media users are more trusting in media ($p < 0.001$).

While traditional and diverse media users have a similar trust level in media, a noticeable divergence emerges when looking at the trust levels of social media users. In 2018, this group exhibited significantly higher trust in news organizations than news avoiders. Yet, our 2023 survey indicates no statistically significant difference between the two groups. This suggests a shift in trust among individuals who primarily source their information from social media platforms.

These results show that the decline in trust observed in [Figure 4.4](#) may be partially due to the type of users respondents. Social media users are becoming less trusting of media, which might be associated with the general environment on these platforms. While the exact reasons behind this shift require further

investigation, these findings may suggest that the dynamics of the social media ecosystem have evolved over the last five years, potentially leading to different attitudes and levels of trust in news organisations.

4.2.4. Attitudes Towards the Media

We now turn to what people want from the media and whether media consumption influences these attitudes. Specifically, we wanted to understand attitudes as it relates to four categories: balance of news coverage, separation of news vs. opinion, ethics and journalism, and governmental support for Canadian news outlets. To assess, in both surveys, we asked respondents if they agreed with several statements regarding the media outlined below: mapping on balance and fairness ("Media outlets should provide balanced coverage of issues" and "Media outlets do not have to be balanced to be fair"), separation of news and opinion ("Media outlets should keep news and opinion separate," "It is acceptable for a media outlet to have a distinct political point of view" and "Journalists should be transparent about their political leanings") and ethics in journalism ("All media outlets should try to be the first to publish a story" and "Media outlets should invest more in investigative journalism.").

Overall, the results show an important stability in individual attitudes between 2018 and 2023. Regarding **balance and fairness**, in general, most participants agreed that media outlets should provide balanced coverage of issues (73% on average across both surveys). Similarly, 40% of the sample in 2018 and 2023 disagreed that outlets do not have to be balanced to be fair in their reporting. In 2023, we observe a specific trend between groups: traditional media users are more likely than news avoiders to support these ideas of balance and fairness. We observe no difference between the other user types. These results show the importance of balance in coverage to achieve fairness in reporting for Canadians.

In terms of the **separation of news and opinion**, respondents to both surveys reported that journalists have to be transparent about their political leaning (60% on average) and that outlets should keep news and opinion separate (68%). However, we observe some disagreement over the acceptability of outlets to have a distinct political point of view. On average, 35% of the sample agreed with this statement, while 32% disagreed. Our analysis shows that, in both surveys, traditional and diverse media users are more likely to think it is acceptable for outlets to have political leanings. Overall, Canadians want a separation between news and opinion and clarity on journalists' political leanings but disagree on whether outlets should hold political points of view. Their media consumption partially drives this difference.

Regarding our evaluation of **ethics and journalism**, respondents reported wanting more ethical journalism. Participants agreed that outlets need to invest more in investigative journalism (65% on average). We observe no difference between media users for this category.

In our analysis of **governmental support for media**, we asked participants to report their agreement with two statements: (1) "Canadian news outlets

should receive direct financial subsidies from the federal government," and (2) "Canadian news outlets should receive more favourable tax treatment from the federal government."

Results show no overwhelming support for these policies as only 23% of the sample support subsidies from the government and only 28% support favourable tax treatment for media organisations. However, traditional media users are significantly more likely to support financial subsidies or favourable taxes for news outlets than news avoiders (consistent between 2018 and 2023; $p < 0.001$). Similarly, diverse media users also tend to support these policies more than news avoiders ($p < 0.05$). Social media users are not systematically different as compared to news avoiders on any of these measures.

Together, these results demonstrate the importance of individual media environments in forming attitudes toward media and what are the best policies to support news organisations. Unsurprisingly, individuals who use news outlets are more likely to agree with more governmental support for news.

4.3. CANADIANS IN THEIR 2023 INFORMATION ECOSYSTEM

This comparison between 2018 and 2023 is not available for all measures. The 2023 survey included novel questions focused on misinformation and conspiracy theories, attitudes towards the information ecosystem, political engagement, and that allow us to evaluate political knowledge and exposure across linguistic and geopolitical barriers.

4.3.1. Exposure to Misinformation and Conspiracy Theories

Canada has experienced a marked increase in the salience of misinformation. Misinformation around crucial political issues like health policy, the environment, and so on, can create important cohesion challenges which limits collaboration toward collective goals. For instance, when people are exposed to covid-19 vaccine misinformation, they are more hesitant to take it³⁷, which in turn may prolong pandemic measures. Indeed, most Canadians agree that misinformation represents a pressing issue and that both the government and private media players have a role to mitigate its effects (see [Figure 4.10](#)). While citizens consider misinformation an important issue, we estimate that people have had a somewhat limited exposure and this finding is somewhat related to structure and dynamics of the news media ecosystem.

Misinformation creates important challenges for democracies. It has the power to mislead citizens, leading to ill-informed opinions about the state of the world and undermining the democratic bedrock of our society. This section aims to measure Canadians' exposure to misinformation and conspiracy theories.

³⁷ Loomba, de Figueiredo, Piatek, et al., "Measuring the impact of COVID-19 vaccine misinformation on vaccination intent in the UK and USA".

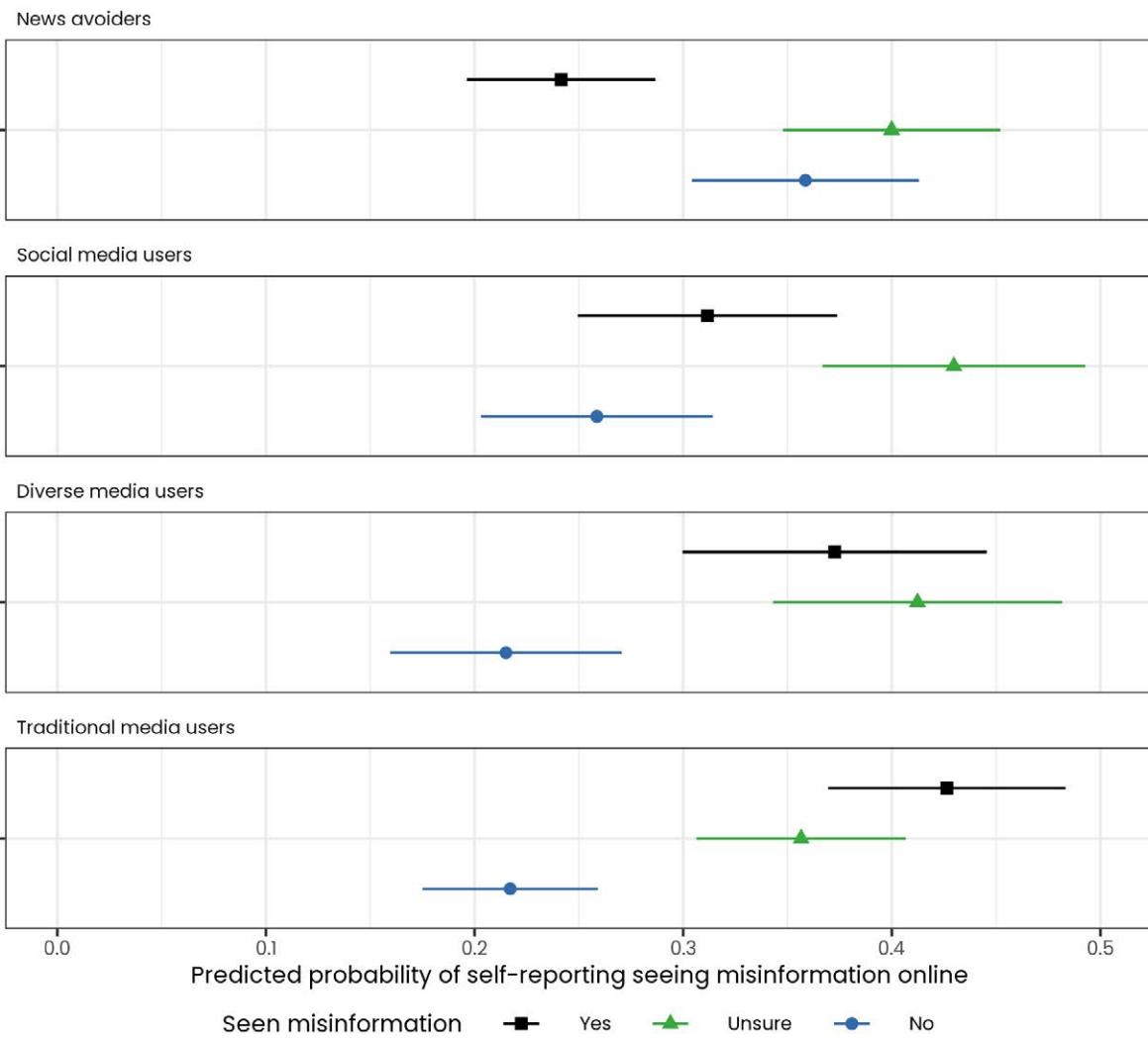


Figure 4.6: Self-Reported Exposure to Misinformation

Situating exposure is fundamental because it tells us to what extent misinformation is a widespread issue and how important it is. We further examine how different individual media environments may influence exposure to and beliefs associated with misinformation and conspiracy theories.

First, we asked respondents whether they think they were exposed to misinformation in the last week. We find that a small proportion of Canadians (24%) believe they were. 40% of our sample reported that they were unsure of their misinformation exposure. This result, which is similar to past studies³⁸, demonstrates the uncertainty around the truthfulness of the information people encounter online. Most individuals do not know if the information they see in their ecosystem is true or not. An important question is to know whether this belief fluctuates between ecosystems.

38 Bridgman et al., "Mis- and Disinformation during the 2021 Canadian federal election".

We examine this further using multinomial logistic regression, which models the probabilities of self-reporting seeing, not seeing, or being unsure of being exposed to misinformation for each news user category. For example, a 0.5 probability is equivalent to $\frac{1}{2}$ chance that the predicted outcome will happen. The advantage of using this method is that we can partial out the effect of confounding variables and make our inference more robust. Here precisely, the probabilities account for individual differences in standard variables used for Canadian political science including political affiliation, gender, education, province, language, and political knowledge.³⁹ [Figure 4.6](#) displays our results of this analysis. We find important differences in the likelihood of reporting seeing misinformation online by user types.

Starting with the square shape, denoting the probability of saying “Yes” to the question, all user types should be more exposed than news avoiders ($p<0.01$), but both traditional media users ($p<0.01$) and diverse media users ($p<0.05$) are more likely to respond “Yes” than social media users.

Regarding the probability of saying “unsure” to see misinformation (triangles), regression results suggest no difference between the news avoiders, social media, and diverse media users. However, considering their higher likelihood of being exposed, traditional news users are less prone to be unsure ($p<0.05$).

Finally, looking at the prediction of reporting not being exposed (rounds), we see that news avoiders are the most likely to select this answer ($p<0.01$). We find that social media users are more likely than traditional ($p<0.01$) and diverse media ($p<0.05$) users to self-report not seeing misinformation online. There is no statistically significant difference between diverse and traditional news users in the probability of reporting seeing no misinformation online.

Taken together, these results show that traditional media users feel that they are much more exposed to misinformation than any other user type. On the contrary, social media and diverse users are more likely to be unsure whether they encounter false information or not online. This divide suggests that the media environment shapes beliefs about misinformation perception and thus may have important implications. While we do not know if people are right when they report seeing misinformation, the fact that they think they did shows how the media ecosystem in which you gravitate influences how people process the information they encounter online. Theorising these two trends leads us to think that it would be plausible that traditional media users may be more skilled at spotting misinformation online. Since they are exposed primarily to quality-controlled news, they may be better able to identify misinformation.

Previous results are based on self-reporting of a general phenomenon: seeing misinformation. Here, we turn to a specific type of false information: conspiracy theories. To evolve understanding of exposure to misinformation, we tailor our research further to assess exposure to a specific types of misinformation – conspiracies.

39 Gidengil, “Dominance and Decline : Making Sense of Recent Canadian Elections”.

Conspiracy theories are defined as “a proposed explanation of a historical event, in which conspiracy (i.e., agents acting secretly in concert) has a significant causal role. [...] The proposed explanation must conflict with an “official” explanation of the same historical event.”⁴⁰

We identified four salient conspiracy theories at the time of fielding. These theories include climate lockdowns (“The Canadian government is planning to impose lockdowns to curb carbon emissions”), 15-minute cities (“The 15-minute city is designed to track and limit the movement of Canadians outside their immediate neighbourhood”), Ivermectin (“is an effective prevention method and treatment against COVID-19”) and the control of the World Economic Forum (“The World Economic Forum is conspiring with politicians to implement a new world order with greater government control”). We asked first, if respondents have heard about each conspiracy theory and then, if they had heard about them, if they believe them to be truthful. We also asked about two true cases to get a baseline of comparison between true and false information. We included questions about Medical Assistance in Dying (“The government is expanding medical assistance in dying (MAID) services to Canadians suffering solely from mental illness”) and the Chinese electoral intervention (“China interfered in the 2019 and 2021 Canadian federal elections”). This comparison is helpful to get a sense of exposure relative to salience.

In terms of exposure, less than 30% of the sample reported exposure to each of the conspiracy theories, while more than half identified being familiar with either China’s election interference or MAID (see the transparent bars in [Figure 4.7](#)). The least known conspiracy is the climate lockdowns (20.5% of the sample), and the most heard theory is the World Economic Forum conspiracy (31.8%).

[Figure 4.7](#) depicts the details of our findings by displaying exposure and belief in different conspiracies and non-conspiracies tested by news consumer type. While exposure is sizable (transparent boxes), less than half of the sample that reports hearing about the conspiracies believe them to be true. For instance, among the news avoiders group, 8% of respondents believe in climate lockdowns, 9% in 15-minute cities, 6% in Ivermectin and 11% in the World Economic Forum. As a baseline comparison, the figure displays a much higher level of awareness toward MAID and Chinese electoral intervention. Surprisingly, without accounting for confounding variables, news avoiders were significantly more aware of MAID ($p < 0.05$) than any other news consumer type

We further examine this topic by conducting a regression on both outcomes (hearing and believing) by user types while accounting for multiple possible confounders, such as political affiliation, political knowledge, age, gender, education, and language. [Figures 4.8](#) and [4.9](#) display the probability of a person in our sample hearing about the conspiracies or believing them to be truthful.

The findings in [Figure 4.8](#) are similar to [Figure 4.7](#): the World Economic Forum conspiracy is the most well-known. News avoiders are the least aware of

40 Coady, “Are Conspiracy Theorists Irrational?”.

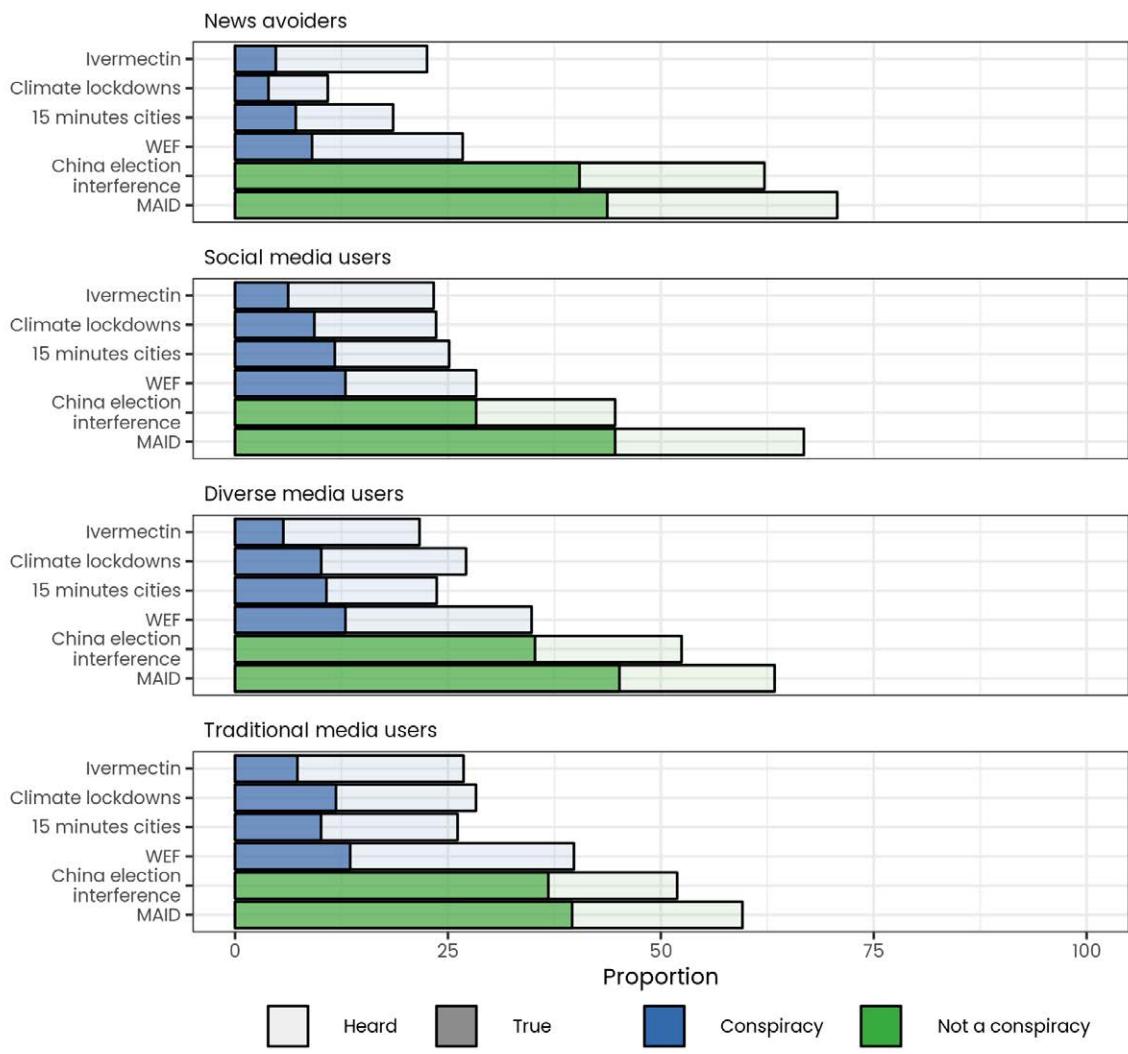
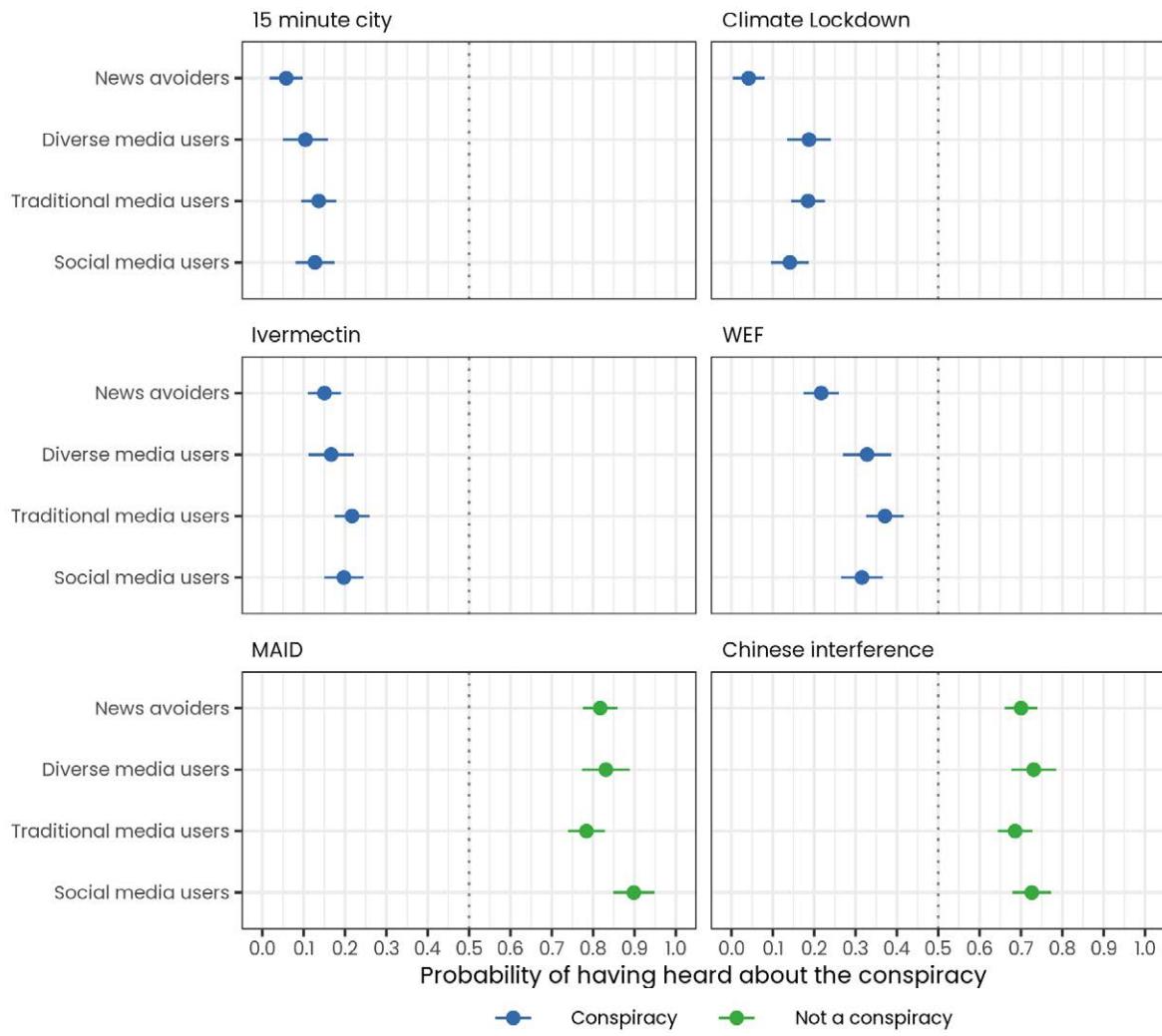


Figure 4.7: Proportion of Canadians Exposed to and Believing in Conspiracies

conspiracies but not of real policies. Overall, [Figure 4.8](#) tells us that exposure to conspiracy theories remains low in Canada⁴¹. In general, those who are not news avoiders are more likely to be aware of these conspiracies ($p < 0.05$). When comparing social media users and traditional media users, we observe some slight differences. Traditional media users are more aware of climate lock downs and the World Economic Forum conspiracy (5 percentage points for both), but less aware of MAID (11.5 percentage points, $p < 0.01$) and Chinese electoral interference (4 percentage points, $p < 0.05$).

Awareness of a conspiracy is itself not necessarily consequential for politics. Conditional upon reporting that they had heard about a conspiracy, we then asked respondents if they believed the conspiracy to be true. False facts may

41 Probabilities in [Figure 4.8](#) account for political affiliation, political knowledge, age, gender, province, education, and language. The predicted probability thus does not capture average or absolute levels but instead allows the observation of divergences as compared to [Figure 4.7](#).



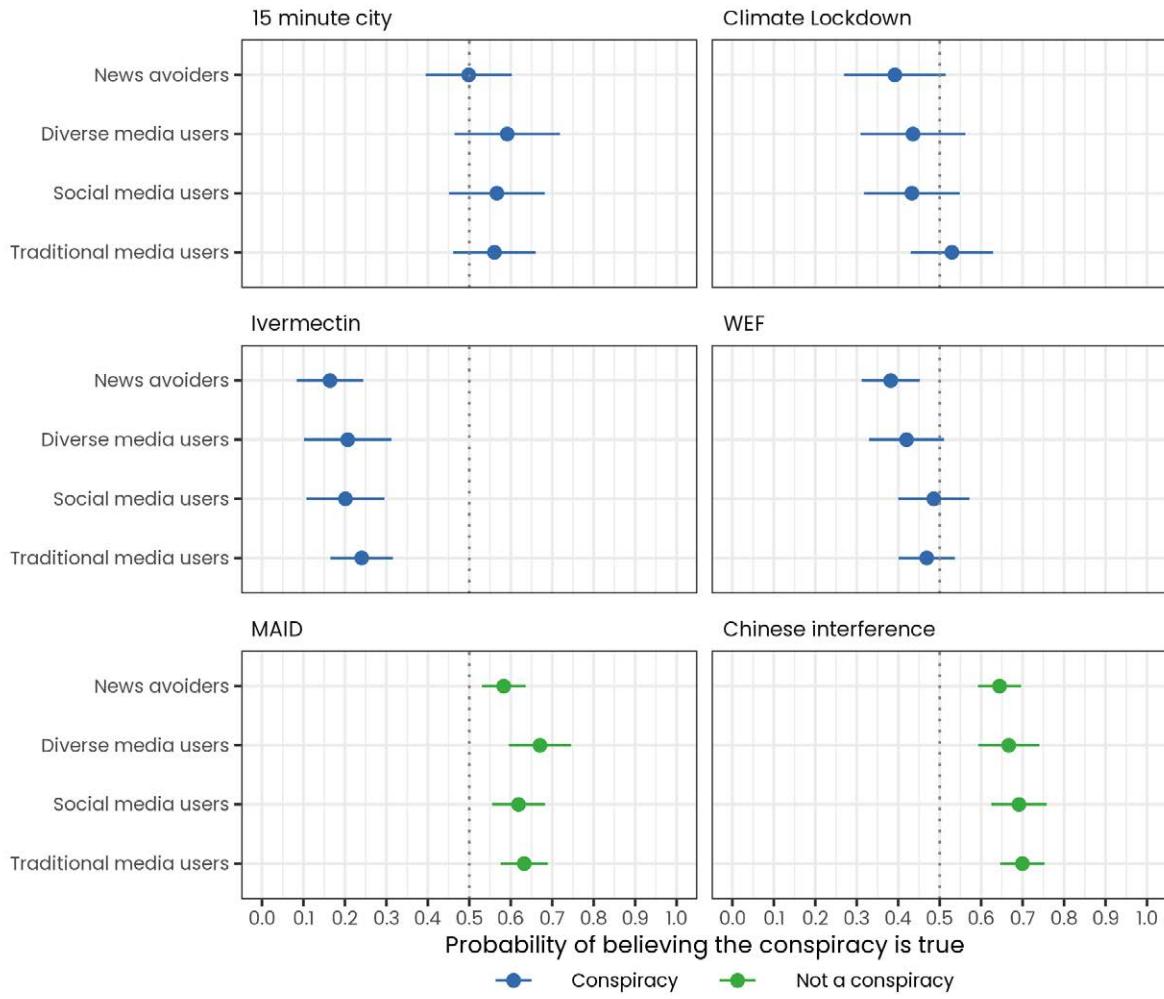
Note: Predicted probability from a linear regression predicting probability of having heard about the conspiracy by user type, while controlling for political affiliation, political knowledge age, gender, education, province, and language

Figure 4.8: Likelihood of having heard about specific misinformation

lead to people developing opinions based on wrong information. In [Figure 4.9](#), we present the predicted probability of thinking conspiracies are true (conditional on exposure). [Figure 4.9](#) shows that conditional on exposure, comparing news consumer types with the different case studies, there is no meaningful pattern or large differences in probability of believing a conspiracy. Generally, our findings suggest Canadians can distinguish true cases (real items, green points) from fake cases (conspiracies, blue points).

While news sources appear to play a relatively minor role in the probability of exposure to and belief in conspiracy theories, political knowledge is another important factor. Theories in political behaviour posit that political knowledge creates two fundamental trends in relationship to message exposure and message acceptance.⁴² On one hand, individuals with higher levels of political

42 Zaller, "The nature and origins of mass opinion".



Note: Predictions from a linear regression predicting the probability of believing the conspiracy is true by user type, conditional on exposure to the conspiracy, while controlling for political affiliation, political knowledge, age, gender, language, education, and province.

Figure 4.9: Probability of Believing in Specific Misinformation

knowledge are more likely to be exposed to political messages because they generally seek more political knowledge through news exposure. On the other hand, due to their extensive information reservoir, politically knowledgeable individuals tend to exhibit initial resistance to new information and display a higher degree of critical thinking. These findings are illustrated in [Figure 4.10](#). Overall, the more political knowledge a person possesses, the more aware they are about conspiracy theories, but as they become more knowledgeable, the more sceptical they become.

Political knowledge was measured with the same items as in [section 4.2.3](#) by asking simple questions such as who is the minister of finance, their provincial Premier, etc. Then, we regressed this index while accounting for the control variables and plotted the predicted probabilities for both outcomes (hearing about in blue and believing in green). In the four top panels representing conspiracy theories, the blue line demonstrates that knowledgeable individuals are more aware than their less knowledgeable counterparts ($p < 0.05$). This relationship

suggests two interesting patterns. On the one hand, knowledge comes from exposing oneself to more political information than the average. Hence, by the same fact these individuals passively encounter these conspiracies. On the other hand, knowledgeable individuals may deliberately seek conspiracy theories.

The green line expresses the relationship between political knowledge and believing that the conspiracy is truthful. Unlike the blue line, the relationship is negative suggesting that the more knowledgeable are less likely to believe conspiracies to be truthful ($p<0.001$).

The World Economic Forum conspiracy is the clearest demonstration of the pattern. The blue line shows that as political knowledge increases the probability of exposure to this theory also increases. Meanwhile, the green line shows that as political knowledge increases, the likelihood of believing in the conspiracy decreases. Nonetheless, we still observe a high proportion of knowledgeable individuals that still do believe in conspiracy theories. Close to 45% (prediction) of the most knowledgeable respondents (who are aware of the conspiracy) believe it to be true. Overall the patterns we observe in the four first plots indicate that knowledgeable individuals are generally more vulnerable to conspiratorial thinking because of their higher exposure. At the same time, they appear to be more resilient as they are comparatively less likely to believe in a conspiracy theory's truth once they have been exposed. Conspiracy theories may thus be more contagious among the least informed.

We find a different pattern for truthful stories – political knowledge has a positive effect on the probability of believing 'MAID' ($p>0.05$) and 'Chinese interference' ($p<0.01$) to be truthful. This is promising – the more political knowledge one accrues the better able one is to correctly identify truth and falsehoods.

Overall, these findings highlight the importance of political knowledge regarding misinformation resilience. Given the decrease in political knowledge observed in [section 4.2.3](#), Canada is likely on a trajectory to become more vulnerable to misinformation.

4.3.2. Attitudes Towards Regulation of the Information Ecosystem

There are two principal actors responsible for creating policy within the news ecosystem environment: the Canadian government and social media platforms. We probed Canadians about their attitudes toward misinformation and preferences regarding what the principal actors ought to do to better control and regulate misinformation.

To examine these dynamics, we identified two key aspects within the public policy cycle to study: problem identification and agenda setting. Both stages are based on public opinion because the public has to express that there is a pressing issue to be solved (problem identification) and that the government has a mandate to put specific policies in action (agenda setting). We asked a total of 11 questions concerning the monitoring and control of misinformation, with respondents asked how much they agree (strongly disagree, somewhat disagree,

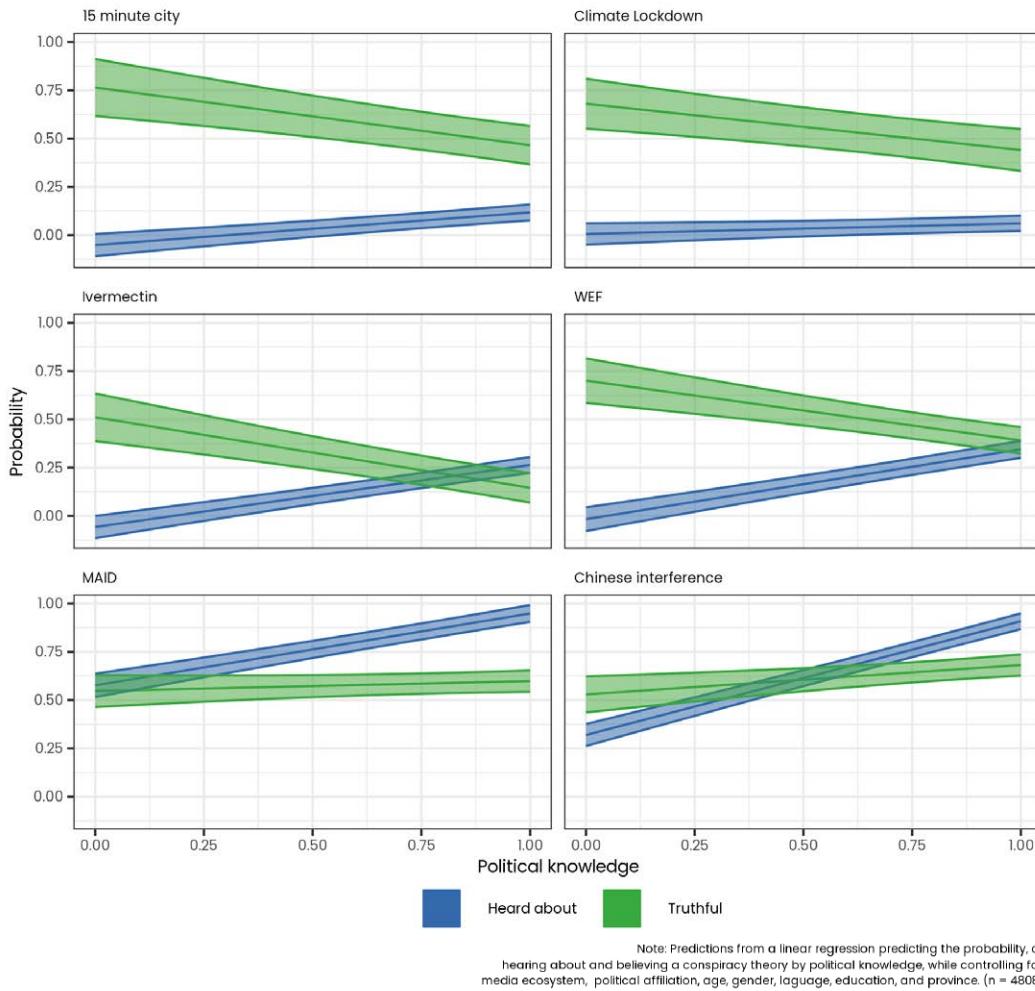


Figure 4.10: Probability of Hearing About and Believing True and Conspiratorial information

neither agree nor disagree, somewhat agree, strongly agree) with a given statement (e.g. Misinformation is increasing polarisation among Canadians).

Figure 4.11 shows predicted probabilities for these two themes. The top row contains the items that measure problem identification, and the bottom row concerns agenda setting. The predicted probabilities are based on regression models of Canadian preferences including controls for age, gender, province, language, and political knowledge.

We find overwhelming agreement in the Canadian population in a variety of areas. Using simple means, a vast majority of Canadians believe that misinformation threatens democracy (69.5%) and fuels polarisation (65.6%). Almost half of Canadians believe misinformation was a severe problem during the last federal (2021) election (46.6%). 69.8% of Canadians believe that social media platforms should ban users who spread misinformation, and 71.2% think they should remove problematic content. Canadians also think that the government has a role to play where it should monitor and limit exposure to misinformation and publicly criticise organisations that spread misinformation (53.2%).

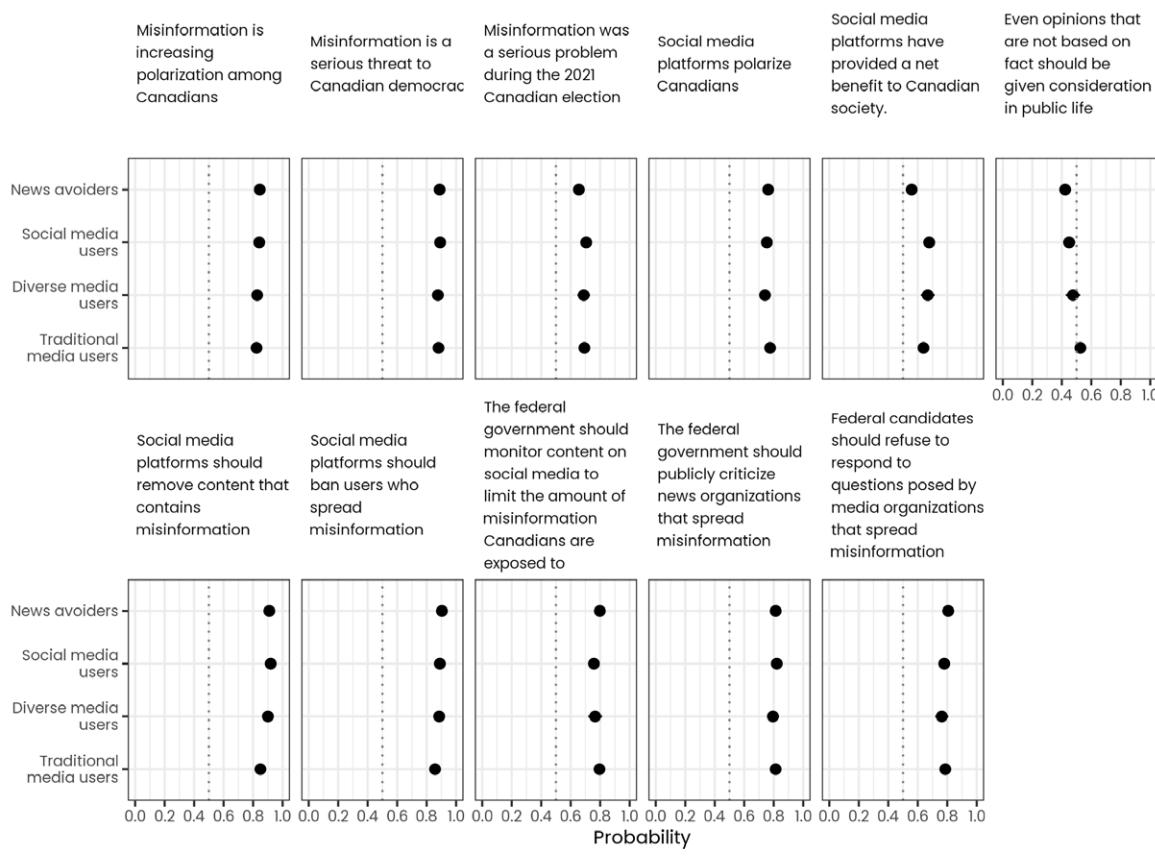


Figure 4.11: News Users Types and Policy Attitudes

However, people have mixed attitudes about whether non-factual opinions are worthy of public attention. News avoiders and social media users are more likely to agree with the statement than traditional media users. However, diverse media and traditional media users are similar.

Overall, Canadians are in agreement that misinformation is an important threat to the country that increases polarization and is a serious problem in elections. Furthermore, citizens agree about the role of social media platforms and the government in mitigating these problems. Respondents agree that the former should remove false information and ban users that spread misinformation. Most Canadians also agree that the federal government should be involved in these discussions. For instance, most participants agree that the government should monitor platforms to limit misinformation.

4.3.3. Political Engagement

Increased news exposure increases political awareness and is associated with increased political participation. Media have an agenda-setting power: they can determine the most pressing issue that citizens need to be aware of, a necessary precondition to political mobilisation. The information environment an individual exists in will highlight different political events and issues, which may lead to different political engagement patterns.

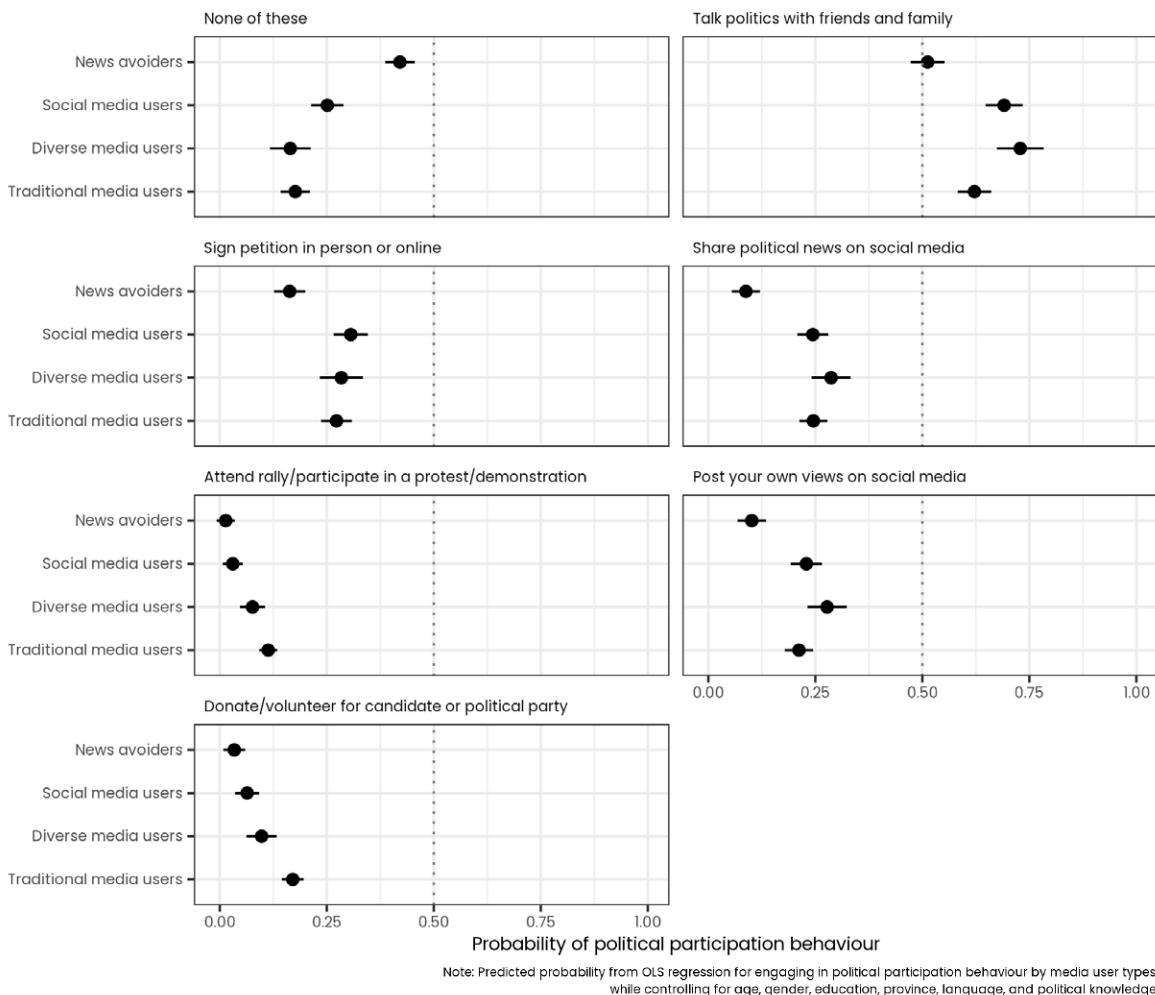


Figure 4.12: News User Types and Political Participation

We asked Canadians whether they had engaged in various political activities in the last six months. These ranged from low effort activities, like talking politics with friends and family or posting online, to more “costly” activities, like donating money for a candidate or attending rallies or protests.

Results are presented in Figure 4.12, which displays predicted probabilities of engagement. News avoiders are the most likely group to be disengaged as they are significantly more likely to report participating in none of these engagements ($p < 0.001$).

Although we find similar patterns in engagement between the different user types, we observe some significant differences. Traditional media users are 8.3 percentage points ($p < 0.001$) more likely to attend physical events and 10.6 ($p < 0.001$) percentage points to donate or volunteer for a candidate compared to social media users. Social media users tend to talk 6.9 percentage points ($p < 0.01$) more about politics with their friends and family than traditional media users. This last result highlights the importance of social media in active engagement with current political events, but also how social media users are less willing to take direct action.

5. Case Studies

The following section provides an overview of four case studies which highlight features of the Canadian information ecosystem: Meta’s decision to block news in Canada, language divisions in the information ecosystem, the 2023 Canadian wildfires, and the June 19th 2023 federal by-elections. These four case studies demonstrate the dynamism of the Canadian media ecosystem, and the extent to which Canadian public opinion changes in response to focusing events. The 2023 Alberta election, for instance, demonstrated that “a small number of Albertans—those most heavily interested in politics—produce a divided social online discourse.”⁴³ Each of the case studies contribute to our understanding of the Canadian media ecosystem.

⁴³ Bridgman, Aengus, Blake Lee-Whiting, Thomas Bergeron, Thomas Galipeau, Alexei Abrahams, Saewon Park, Sara Parker, Taylor, Owen, and Peter John Loewen (2023). “Indistinct Information Habitats: Information and Attitudes in the 2023 Alberta Election.” *Media Ecosystem Observatory*.

5.1.

Case Study: Meta's decision to block news Canada in summer 2023

On August 1, 2023, Meta announced that it began blocking access to news content for Canadians on Facebook and Instagram. We assessed the impact of this decision on Canadian Facebook Users and Canadian news outlets. We find:

1. Facebook Pages of Canadian news outlets generated between 5 and 8 million views per day of Canadian news content pre-ban and the blocking of news has triggered an estimated 89.3% loss of visible engagement with content posted by Canadian news outlets on Facebook.
2. Canadians remain active on Facebook despite the ban and we find suggestive evidence that political engagement is not centred around the consumption and sharing of news content.
3. Many local outlets have stopped posting altogether. Some Canadian news outlets have adopted work-around solutions.

Principal authors:

**Sara Parker and Saewon Park, with support from
Jennie Phillips and Aengus Bridgman**

The Online News Act, also known as Bill C-18 or *An Act respecting online communications platforms that make news content available to persons in Canada*, lays out a framework for large digital platforms to negotiate compensation agreements with Canadian news organizations for posting news content on their platforms. If Bill C-18 works as intended, Meta and Google (and potentially future digital platforms of similar size) would pay Canadian news outlets, transferring an estimated \$329 million in revenue from the platforms to the news industry.⁴⁴ The creation of this bill follows similar moves by other countries—particularly Australia's News Media Bargaining Code, which caused Meta to briefly ban news on their platforms for Australian users.

The stated aim of the Online News Act is to enhance “fairness in the Canadian digital news marketplace” by requiring dominant platforms in the social media market to share some of the revenue generated by the sharing of digital media.⁴⁵ Since 2008, almost 500 Canadian newsrooms have shut their doors, prompting the government to explore ways to reinvigorate the news industry and establish new revenue streams. Social media has posed a unique challenge: 85% of Canadians do not pay for an online news subscription despite consuming the majority of their news online, forcing news organisations to become increasingly dependent on digital ad revenue generated by online engagement.⁴⁶ Bill C-18 places a burden on tech giants—specifically Meta and Google—to direct some of their revenue to supporting the Canadian news industry.

Meta, however, has repeatedly stated that they are already substantially supporting the industry by sending traffic to Canadian news sites—and specifically claimed 1.9 billion click-throughs per year.⁴⁷ Furthermore, Meta asserts that posts with news links make up less than 3% of the average Facebook news feed.⁴⁸ The company is therefore firm in its stance that, overall, news outlets benefit more from Facebook than Facebook benefits from news, asserting that Bill C-18 is “based on a fundamentally flawed premise” and “flies in the face of global norms on copyright principles and puts at risk the free flow of information online.”⁴⁹ Meta proceeded to block Canadian users from seeing news on its platforms, indicating that they refused to participate in “a flawed and unfair regulatory environment.”⁵⁰

The Meta ban meant that users in Canada would no longer be able to view or share news content on Facebook and Instagram.⁵¹ While initially stating that the process would take place “over the course of the next few weeks,” Meta provided

44 Jones, “Understanding Bill C-18: Canada’s Online News Act explained”.

45 House of Commons, “Chapter 23: An act respecting online communications platforms that make news content available to persons in Canada”.

46 De Flaviis, “Most Canadians concerned about losing access to news because of Bill C-18: survey”.

47 Meta, “How Meta Supports News Providers in Canada”.

48 Meta, “New Analysis Shows News Industry Reaps Considerable Economic Benefit from Facebook”.

49 Meta, “Meta’s position on Canada’s Online News Act”.

50 Ibid.

51 Meta, “Changes to News Availability on Our Platforms in Canada”.

few additional details regarding the nature of the ban. Specifically, it was unclear what the ban would actually look like for both users and news organisations.

This case study examines the immediate impact of the blocking of news on Facebook in Canada and asks three questions:

- How did the blocking of news unfold on Facebook?
- How did the blocking of news impact Canadian Facebook users?
- How did the blocking of news impact Canadian news organisations?

To answer these questions, we collected a large volume of Facebook data using their CrowdTangle tool. See the methodological details appendix for additional information on the data collection and analysis methodology.

5.1.1. HOW DID THE BLOCKING OF NEWS UNFOLD ON FACEBOOK?

Although the visibility of news accounts on Facebook declined beginning on August 1, the full ban was not implemented until August 9. Since then, Facebook pages of a wide variety of news organisations—both Canadian and international—now display this message to Canadian users:



Figure 5.1: Facebook message when Canadians visit news organisation pages

Content posted prior to August 9 is also not available.

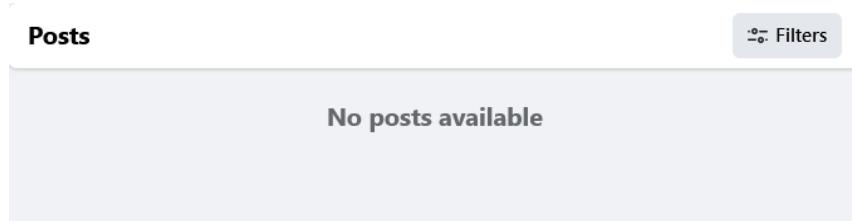


Figure 5.2: Facebook message when Canadians visit posts of news organisation pages

Additionally, when links to news sites are shared by other users or Pages, Canadian users see the following message:



Figure 5.3: Message when Canadians view shares of news articles or pages

When you click on “Learn more”, users are taken to a Facebook Help Centre document⁵² explaining that Canadians can no longer view or share news content in response to the Online News Act.

However, some news Pages continue to be available. For example, although some news organizations’ Facebook Pages are tagged as a “Media/news company”, their posts are still visible to Canadian users, but not the links to their websites.

5.1.2. How did the blocking of news impact Canadian Facebook Users?

SUBSTANTIAL DECREASE IN ACCESS TO NEWS

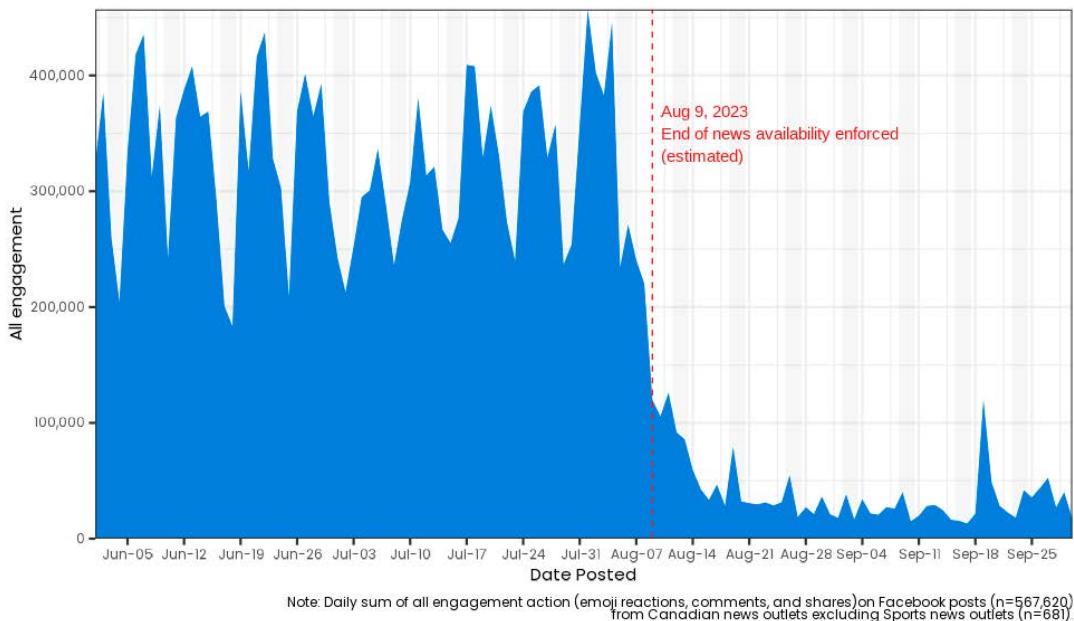
Despite the handful of exceptions to the news ban, the majority of Canadian Facebook users are no longer seeing news on their feeds. This is a major shock to the Canadian media ecosystem; prior to the ban, 50% of Canadians reported that they got their news from Facebook. The Facebook Pages of news outlets alone generated between 5 and 8 million views per day of Canadian news content.⁵³

[Figure 5.4](#) shows the total number of likes, reactions, comments, and shares generated by Canadian outlets’ news posts per day. Meta’s decision triggered an estimated 89.3% loss of visible engagement with content posted by Canadian news outlets on Facebook.⁵⁴ This is a very conservative estimate, as we do not account for engagement with and views of news content that is a) shared directly by Facebook users (i.e. not resharing a post from a news Page), and b) from international news outlets.

52 <https://www.facebook.com/help/2579891418969617> (accessed November 2023).

53 This estimate is based on the daily total engagement with Canadian news outlets before and after the ban. Results from Nyhan et al. show that for every reaction to a post, there is an average of 18.8 views. We can therefore estimate the number of views by multiplying the rate of engagement by 18.8.

54 This decrease in daily total engagement compares the post ban period (Aug 9–Sep 30 2023) to the 12 months prior to the ban. The pre-blocking average was 369,169 daily total engagements, with the observed post-blocking average being 39,686 daily total engagements.



**Fig 5.4: Daily Total Engagement (Reactions/Comments/Shares)
Excluding Sports News Outlets**

UNCHANGED POSTING FREQUENCY

To understand how Canadian Facebook users – specifically those with an established interest in Canadian news – have reacted to the ban, we examined Facebook Pages (619) and Groups (914) that were the most active disseminators of Canadian news links prior to the ban. We plotted the number of posts across the Pages and Groups we evaluated over time and found that, although they can no longer share news links, they have maintained a consistent level of posting and engagement after the ban (see [Figure 5.5](#)).

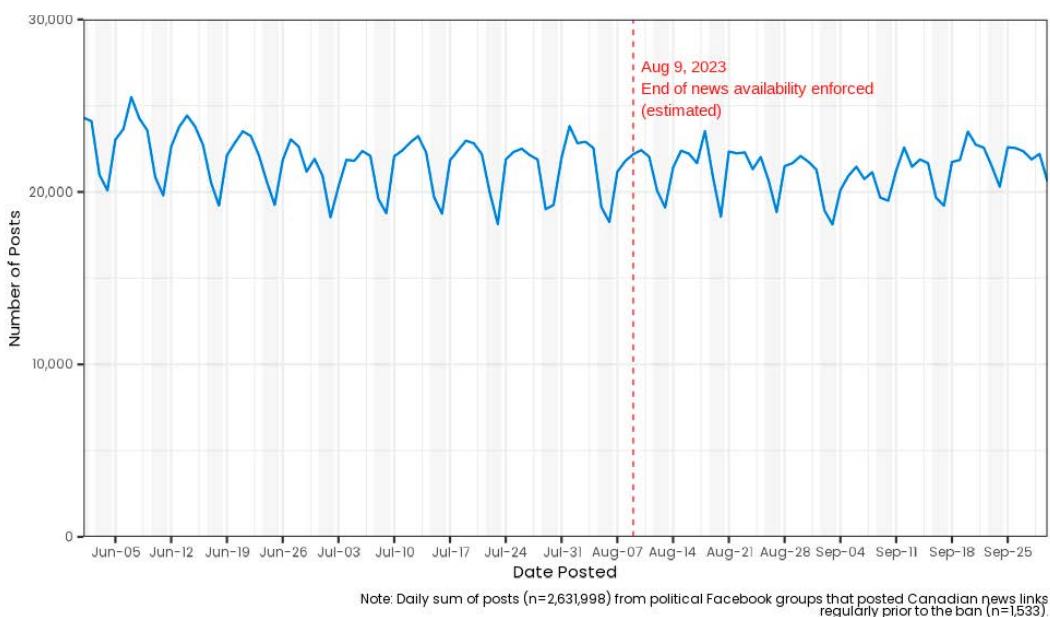


Fig 5.5: Daily Total Post Volume from Groups and Pages

CHANGE IN POSTING BEHAVIOUR

We then categorised these posts into those with photos, those with links to Canadian news stories, and those with links to other websites. Figure 5.6 shows that Groups and Pages that focus on politics topics switched from sharing links to news articles to simply sharing more photo content.

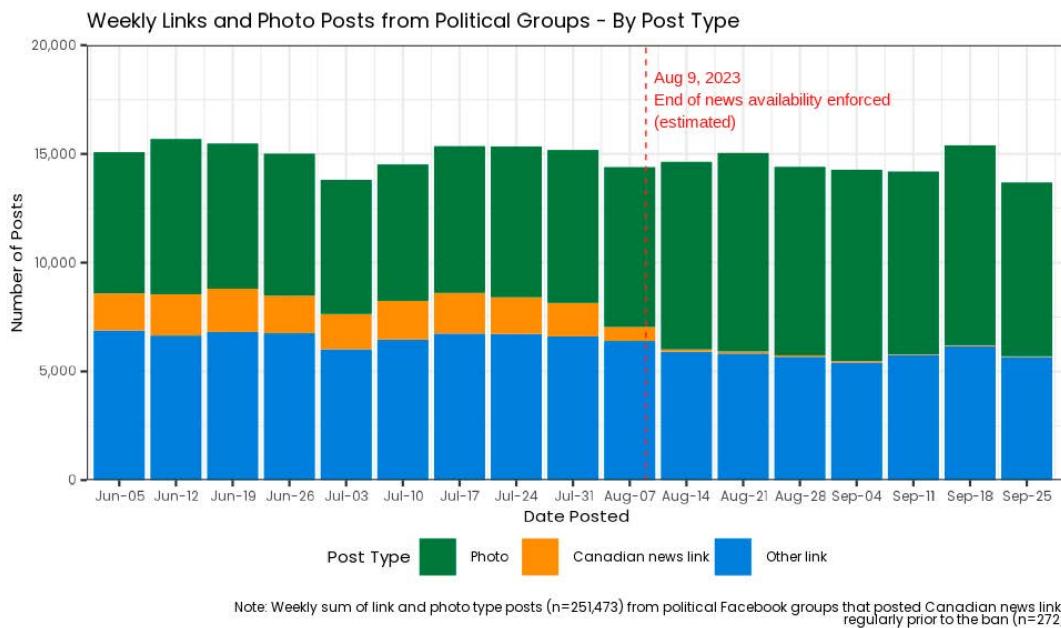


Fig 5.6: Weekly Link and Photo Posts from Political Groups – By Post Type

We qualitatively investigated this shift and observed that political Groups often share screenshots of news article headlines instead of linking directly out to the news website. This photo method of sharing news is depicted in [Figure 5.7](#). Not all photos shared in these political Groups and Pages are screenshots of news stories, however.

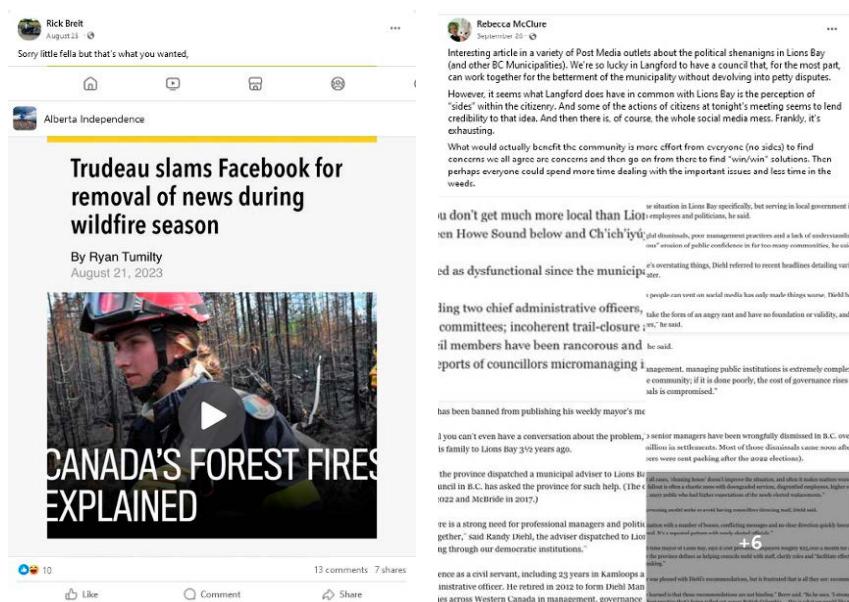


Fig 5.7:
Photos & Screenshot
Methods for
News Sharing

LITTLE USER EXODUS FROM FACEBOOK

Beyond exploring how posting behaviour changed on Facebook, we were also curious to see if there was a change in user membership on the platform, i.e. did people leave the platform in search for another outlet to share/access news? We looked at YouTube and TikTok for any fluctuations in engagement and did not find any significant substitution effects. This finding suggests that users may not be fleeing Facebook in pursuit of news on other social media,⁵⁵ although it may still be too early to evaluate these effects. We believe this may be because, even before the blocking of news, a significant portion of content from news outlets consumed on Facebook was from sports news outlets (a news source not covered under the Online News Act and subsequently not subject to the ban). Six sports outlets in the dataset of 687 news outlets (0.9%) accounted for 34.7% of engagement with Canadian news sources on Facebook in the 12 months prior to the ban.⁵⁶

5.1.3. How did the blocking of news affect Canadian news organizations?

VARIABLE DECREASE IN POSTING FREQUENCY

All Canadian news organisations on Facebook appear to have changed their behaviour after the ban. First, how did it affect their posting frequency? In the 12 months leading up to the ban, the majority of news posted on Facebook by news organisations themselves came from the Pages of local-level news outlets, accounting for 44.4% of engagement and 1.25 billion views of Canadian news content. In other words, prior to the ban, total local news engagement vastly exceeded national (see [Figure 5.8](#)). Following the announcement and implementation of the ban, we observed a variable decrease in posting frequency amongst all types of news outlets. In [Figure 5.8](#), we plotted the number of posts for national and local news outlets over time. We found that local news organizations drastically reduced their posting frequency, while national news organizations' posts dropped slightly but overall remained consistent. This may be a reflection of a differential capacity or national outlets automating posting articles to social feeds.

⁵⁵ This is consistent with data from independent tracking companies. See, for example, Paul and Scherer, "Exclusive: Meta's Canada News Ban Fails to Dent Facebook Usage".

⁵⁶ These six sports news outlets were defined as those Canadian-based news outlets that exclusively feature news related to sports. The percentage of sports news engagement is the sum of each engagement instance (reactions, comments, sharing) in the past 12 months from Canadian sports news outlets divided by the sum of engagement instances from all Canadian news outlets.

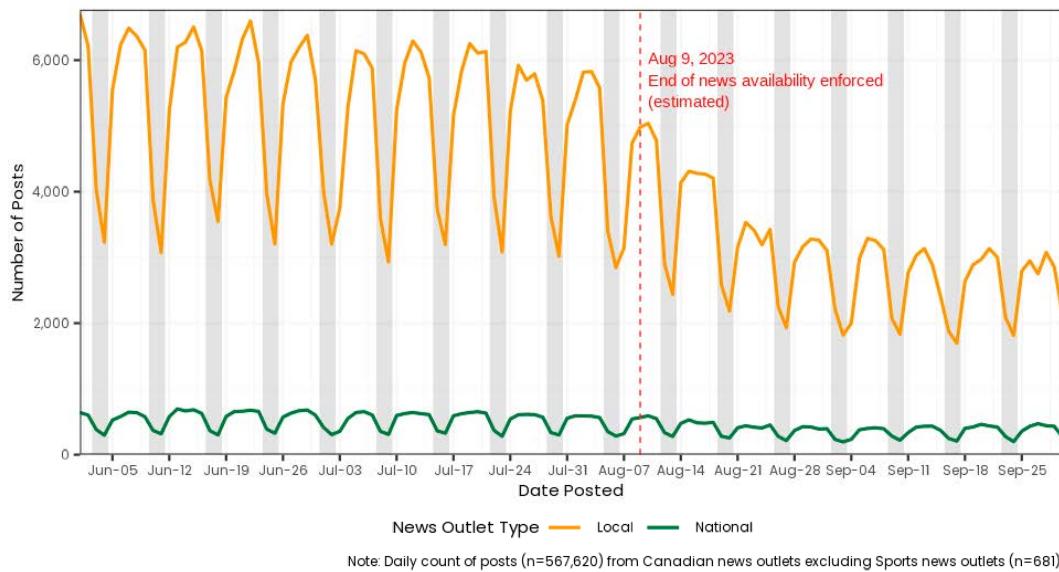


Fig 5.8: Daily Total Post Volume – By News Outlet Type

CHANGE IN POSTING BEHAVIOURS

Many outlets (both local and national) continued to post after the ban. If all news was blocked, why and how are news outlets posting at all? To circumvent the ban, we observed a variety of strategies. Some outlets whose links are blocked but whose Pages have not been blocked have been linking to their posts on X, which then has a link to the news story itself.

- Navigate to this story via our X post <https://tinyurl.com/547ff33t> or find it on our website.

Figure 5.9: A Canadian news outlet sharing their content on Facebook through X

Other Canadian news organizations may have avoided the ban by labelling themselves as things other than “Media/news company”, such as “Broadcasting & media production company.” Some outlets have continued to provide local Facebook users information about local news by reposting relevant information from other Pages (e.g., information about school closures is reposted from the school district Page) or putting the news content directly into the post without linking to their site. Although these methods have allowed them to keep their Facebook Pages and maintain engagement at a similar rate as before the ban, it has prevented them from generating digital ad revenue from Facebook because the platform is no longer sending ‘clicks’ to their website.

However, a loophole to the link-sharing ban has been discovered: in some cases, it does not apply to the comment section. Some organizations whose Pages are still visible to Canadian users have thus begun linking to news stories in the comments, allowing them to continue to use their Facebook Pages to drive traffic to their websites. Although links from the largest Canadian news outlets remain banned from the comment section, some smaller local-level

organizations can still drive traffic from Facebook to their own sites. Some international news outlets also remain visible to Canadian users.

AN INCREASE IN INACTIVE LOCAL NEWS OUTLET ACCOUNTS

Not all outlets have employed workarounds, however. Many outlets stopped posting altogether after the ban which has led to an increase in inactive accounts. The vast majority of the news outlet accounts that went inactive were local news outlets (313 out of 323 now-inactive accounts, or 96%). Nearly half of all local news outlets on Facebook became inactive after the announcement of the ban, compared to only 20% of national news outlets becoming inactive.

[Figure 5.10](#) shows the number of accounts that shared their last post on a given day over time. We see a steep increase in inactive accounts after the blocking of news, even though Canadian news Pages can still post after the ban (content can be accessed by an international audience). We differentiate between outlets with only a Facebook Page versus multiple social media accounts across Facebook, Instagram, YouTube, and TikTok. This allows us to identify which inactive local news outlets may be left without other channels of social media communication. Out of the 639 local news Facebook Pages, almost half of the Pages (313 accounts, 49%) have completely stopped posting. Of these inactive local outlets, just over half (176 Pages, 56%) did not have a social media footprint on the other platforms examined here. In other words, one quarter of the local news outlets in our seedlist (28%) have shut down a significant portion or the entirety of their socially networked sharing strategy.

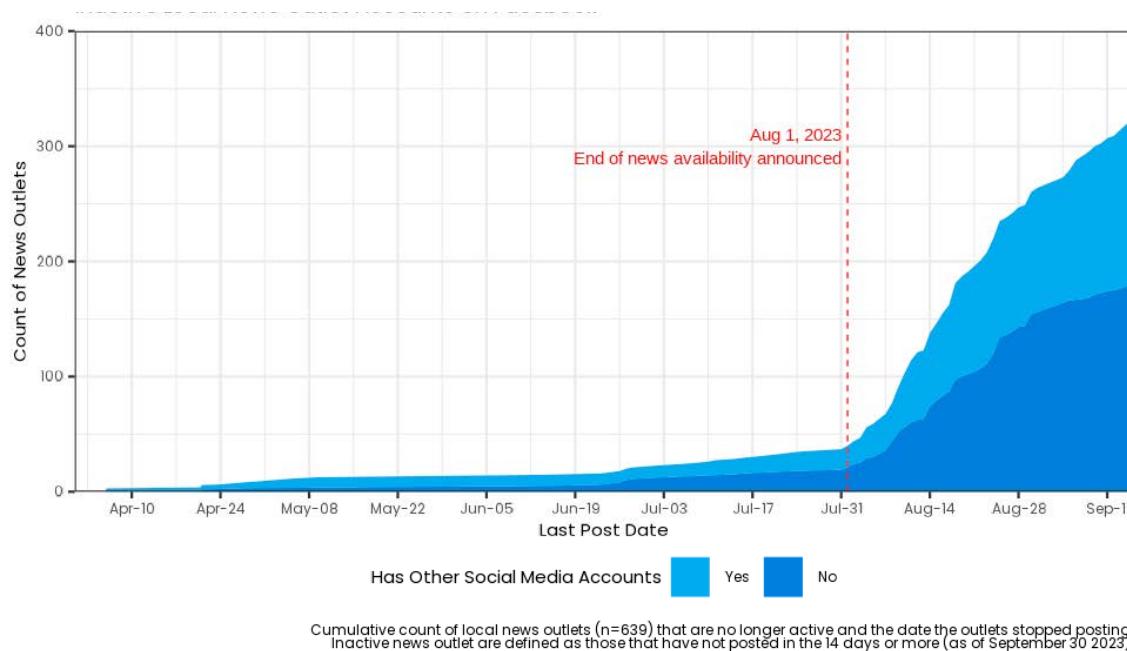


Fig 5.10: Inactive Local News Outlet Accounts on Facebook

VARIABLE DECREASE IN ENGAGEMENT

To further understand the reasoning behind this surge of inactive accounts and better characterize news outlet behaviour, we looked at engagement. Do we see a change in reactions, comments, and shares of news posts? [Figure 5.11](#) shows daily engagement (number of reactions, comments and shares) over time for local and national news outlets, we see engagement drop disproportionately between both outlet types. Specifically, local news outlets experienced a more dramatic decrease in engagement than national news outlets. A key exception to this is national-level Indigenous-focused news outlets, like APTN News and Windspeaker, who are currently receiving no engagement on Facebook.

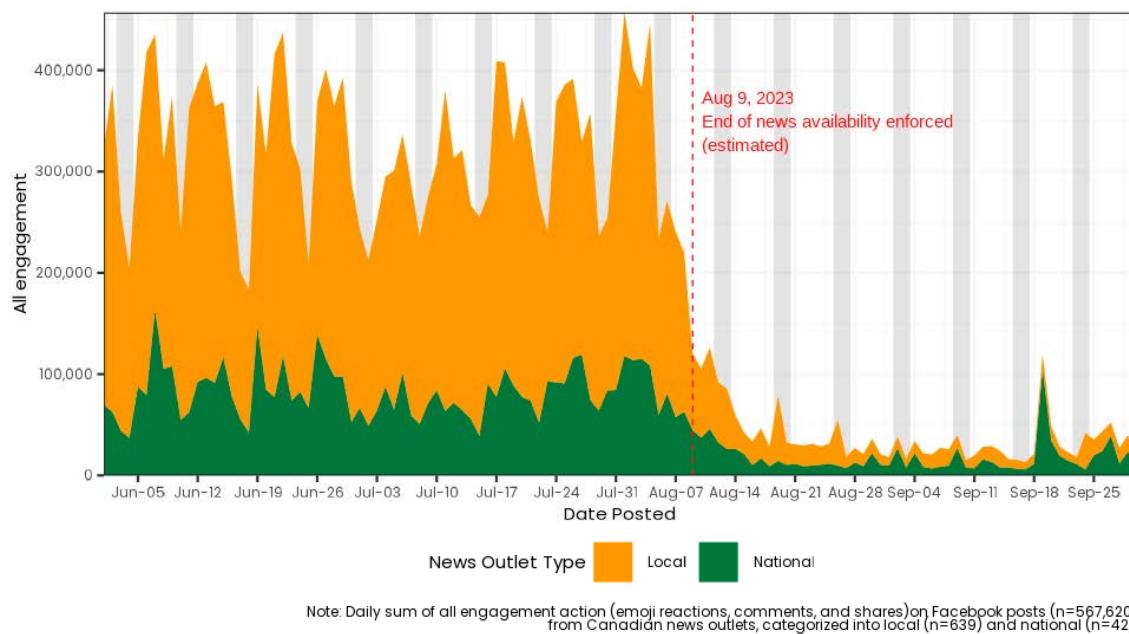


Fig 5.11: Daily Total Engagement (Reactions/Comments/Shares) – By News Outlet Type

Why did national outlets experience less of a drop in engagement than local ones? These outlets must enjoy a larger international audience (Canadian and non-Canadian), while readers of local outlets are more likely to be geographically based in Canada. For example, we examined posts from Canadian news outlets that have the highest levels of engagement after the ban and two national-level news outlets stand out: True North and Global News. Their Pages account for 15.2% and 12.3% of engagement for Canadian news Pages post-ban compared to only 2.8% and 3.9% pre-ban. They have been relatively more successful at engaging an international audience. We closely examined Global News, and found a slight decrease in Canadian-specific Facebook posts after the ban. Global may have deliberately shifted the focus of their news from national to international as a means of increasing their engagement with their international audience. As the ban becomes more entrenched, we will be able to better observe these media outlet responses.

UNCLEAR SHIFT TO OTHER PLATFORMS

Did news outlets leave Facebook to be able to post elsewhere? We evaluated engagement on news organizations' TikTok and YouTube accounts after the ban and observed a small increase. However, we cannot be certain the ban itself caused this bump. We do not observe any large movement to other platforms. Sharing news on Facebook is easier compared to other social media platforms, with news outlets able to directly post a link and have the article's featured photo appear automatically. Audiovisual platforms like TikTok and YouTube require more effort to create and post content. This can be a significant obstacle for migrating from Facebook to other platforms for small news outlets who have less resources to spare. As highlighted earlier, our dataset shows that almost half (296/639) of local news outlets who have a Facebook Page do not have accounts on Instagram, TikTok, or YouTube.

5.2.

Case study: Language divisions in the information ecosystem

The Canadian political and media structure has been described as heterogeneous, with two primary distinct information environments: French and English.⁵⁷ While an important literature has been built around describing the differences of these two environments, little is known about how much they overlap. To what extent are unilingual Canadians aware of the media ecosystem of their linguistic outgroup? This section examines people's awareness of the full Canadian information ecosystem. We find:

1. Canadians have a low awareness of politicians and journalists. They have difficulty recognizing and naming political public figures, even if they are "high" profile and well-known among those who follow politics closely.
2. Traditional and diverse media users are significantly more likely to recognize public figures than news avoiders for both journalists and politicians and generally more likely to recognize public figures as compared to those who get their news from social media.
3. English Canadians are more aware of the political and media environment of the United States as compared to that of French-speaking Canada. They have very low recognition of public figures from French-speaking Canada, even among those who have risen to national prominence.
4. Linguistic differences contribute to distinct awareness and subsystems of the Canadian information ecosystem.

Principal authors:

Thomas Bergeron, Blake Lee-Whiting, and Aengus Bridgman

57 Hallin and Mancini, "Comparing Media Systems: Three Models of Media and Politics".

To evaluate knowledge of opinion leaders, we designed a new survey measure to evaluate Canadian awareness of different political personalities (English-speaking journalists and politicians from Canada and the United States, and French-speaking ones from Canada). We fielded this behavioural measure in the 2023 Canadian Information Ecosystem ($n = 4,808$) survey.

The measurement had two steps. First, participants were asked to select all the individuals they recognized from 9 pictures. Second, for all the selected pictures, respondents were asked to confirm their knowledge by identifying the name of the person in the picture, from between four choices. Each respondent went through these questions twice, once seeing nine politicians and once nine journalists (order randomized). This method provides a reliable measure of awareness about politicians and journalists. The names of the politicians and journalists are displayed in [Table 5.1](#). The research team made the choice of politicians and journalists to capture as much diversity as possible in terms of ideology, importance, and recognition. Importantly, the nine politicians and journalists were categorized into one of three media environments: English-Canada, French-Canada and the United States. That way, we are able to assess the awareness of Canadians for each environment and further break down that awareness by the primary language spoken by the respondent.

Table 5.1: Names of public figures grouped by media environment

	Politicians	Journalists
English-Canada	<ul style="list-style-type: none"> • <i>Pierre Poilievre (Conservative Party leader)</i> • <i>Maxime Bernier (People's Party leader)</i> • <i>Chrystina Freeland (Liberal Party, Minister of finance)</i> 	<ul style="list-style-type: none"> • <i>Rosemary Barton (Journalist, CBC)</i> • <i>Peter Mansbridge (News presenter, CBC)</i> • <i>Ezra Levant (Co-founder and CEO, Rebel News)</i>
French-Canada	<ul style="list-style-type: none"> • <i>Yves-François Blanchet (Bloc Québécois leader)</i> • <i>Mélanie Joly (Liberal Party, Minister of Foreign Affairs)</i> • <i>Manon Massé (Québec Solidaire, MP in the Assemblée Nationale du Québec)</i> 	<ul style="list-style-type: none"> • <i>Richard Martineau (Columnist, Journal de Montréal)</i> • <i>Émilie Nicolas (Columnist, LeDevoir)</i> • <i>Chantal Hébert (Journalist, Radio-Canada and The Toronto Sun)</i>
United States	<ul style="list-style-type: none"> • <i>Ron DeSantis (Governor of Florida)</i> • <i>Marjorie Taylor Greene (Republican, US congresswoman)</i> • <i>Alexandria Ocasio-Cortez (Democrat, US congresswoman)</i> 	<ul style="list-style-type: none"> • <i>Tucker Carlson (Political commentator, X)⁵⁸</i> • <i>Rachel Maddow (News presenter, MSNBC)</i> • <i>Chris Wallace (Journalist, CNN)</i>

The analysis focuses on the total proportion of respondents that (1) reported recognizing a picture, and (2) correctly identified the individual on the picture (conditional on recognizing). As a proxy to measure what information he has

environment respondents are in, we will assume that people taking the survey in English are in the English information environment and those taking the survey in French are in the French one. To examine if the respondents' language influences our measure of awareness, we employ linear models controlling for standard variables such as age, gender, education, bilingualism, ideology and region.

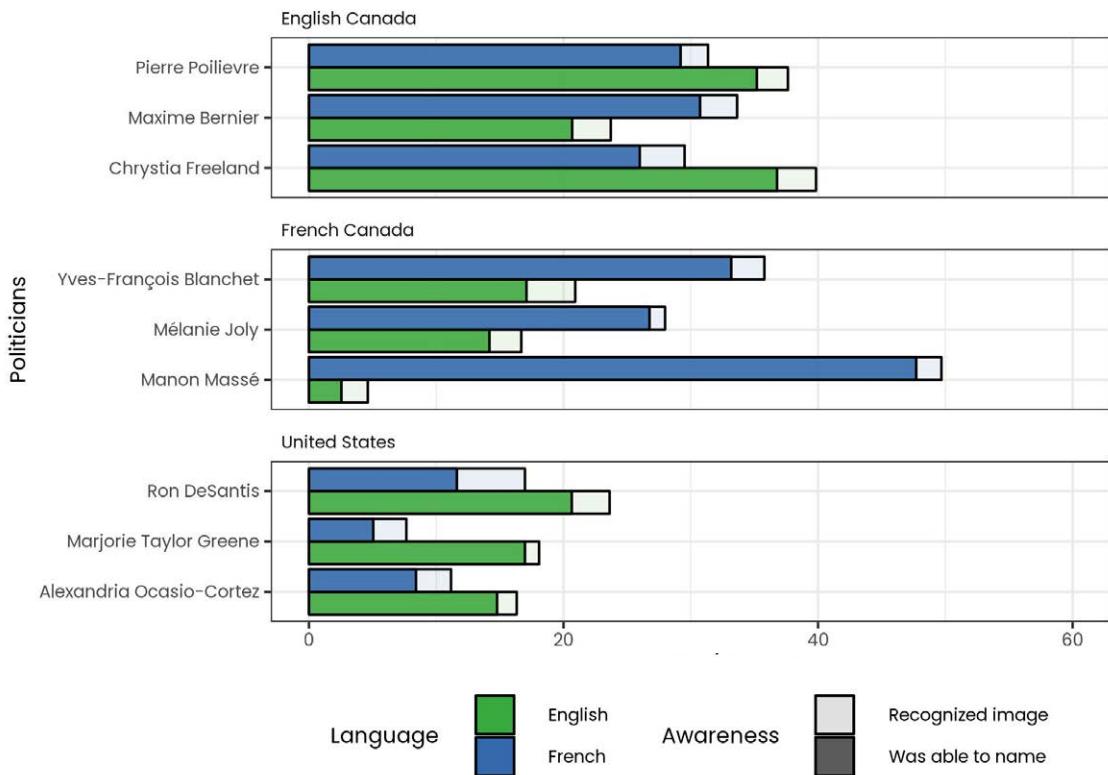
We find that respondents generally have a hard time recognizing and naming politicians and journalists. Indeed, the most recognized public figure, Chrystia Freeland, the Canadian Minister of Finance, was only selected by 38% of the sample. Only four other public figures were recognized by more than a fourth of the sample: Pierre Poilievre (37%), Peter Mansbridge (36%), Tucker Carlson (27%) and Maxime Bernier (25%). Canadians seem to have difficulty recognizing and naming political public figures, even if they are "high" profile and well known among those who follow politics closely. This trend seems particularly true for journalists, where five of the nine individuals were recognized by less than 15% of the sample (this is the case of only one politician).

Importantly, these trends highly depend on the respondents' information environment (see Figures 5.12 and 5.13 for percentages of respondents recognizing and being able to name politicians and journalists). We observe important differences in who gets recognized and named as a function of people's language used in the survey.

When asked about politicians and journalists from English-speaking Canada, we observe two different trends (see Figure 5.12). On the one hand, respondents from both environments were equally able to recognize and name the politicians, with only one exception (Maxime Bernier). French speakers were seven percentage points more likely to recognize Bernier's picture ($p < 0.05$). We observe no statistically significant effect of language on recognition patterns. This might be due to the presence of these politicians in both environments due to their importance in today's political news cycles.

On the other hand, there are significant differences between English and French speakers regarding journalists' recognition (see Figure 5.13). 39.5% of English speakers recognized Peter Mansbridge, while only 13% of French people selected his picture ($p < 0.001$). A similar trend is noticeable for Rosemary Barton, who was recognized more by English-speaking respondents by 10 percentage points ($p < 0.01$). However, the difference is naming the person once selected is only statistically different for Barton ($p < 0.05$). We see no difference in the patterns regarding Levant. These results show that the media environments have little overlap in Canada: Francophones simply do not know top English-language journalists.

since moved to X where his show consistently pulls in tens of millions of views.



Note: Percent of respondents recognizing politicians. Based on a survey conducted with 4,808 Canadians in 2023.

Figure 5.12: Awareness of Politicians from Canada and the United States

These differences are exacerbated when looking at the French-Canadian political and journalistic environment. English speakers were much less likely to recognize politicians from French-speaking Canada. Yves-François Blanchet was recognized by 21% of English speakers and 36% of French speakers, a 15 percentage points difference ($p<0.05$), even though he was present at both English and French leader's debates in the last election and has been nationally prominent since 2019. Similarly, the difference for the Minister of Foreign Affairs, Mélanie Joly, is 11 percentage points in recognition between both languages ($p<0.01$). The difference for Manon Massé, a Member of Parliament in the Assemblée Nationale du Québec (the provincial parliament) is an astonishing 45 percentage points. Half of the French speakers recognized Massé, while only 5% of English speakers did ($p<0.001$). Of these 5%, only half were able to name Massé. 95% of French speakers were able to correctly identify her.

The francophone media ecosystem is no different: we observe large differences in awareness. English speakers are less likely to recognize and name both Chantal Hébert (6 percentage points, $p<0.01$) and Richard Martineau (33 pp, $p<0.001$). While we observe no statistical difference for Émilie Nicolas, it is clear that prominent francophone journalists do not reach into the English information environment. Moreover, a journalist like Chantal Hébert, who works in both languages, is still considerably less recognized by English speakers. Peoples' awareness is highly conditional on their linguistic and media environment.

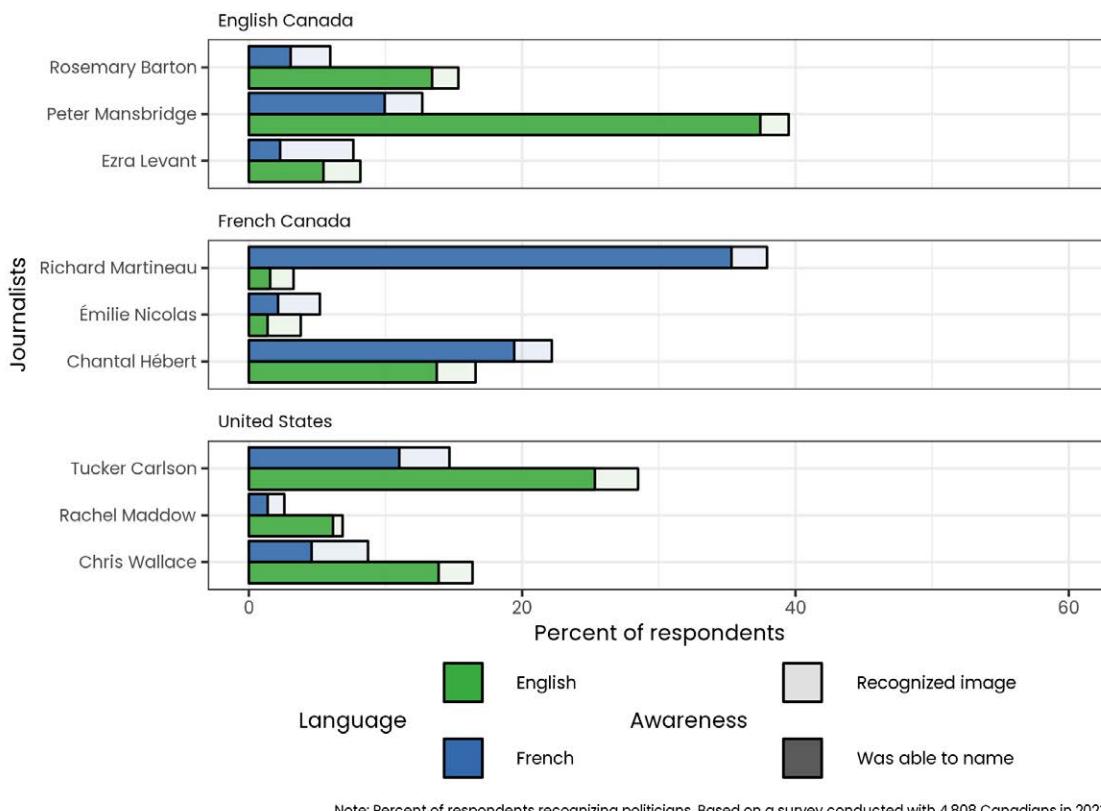


Figure 5.13: Awareness of Journalists from Canada and the United States

The United States political and media ecosystem often spill-over into Canadian media coverage. Hence, it enters people's ecosystem as a third actor (with the French and English). The awareness of key US political personalities and their comparison with their Canadian counterparts offers an interesting benchmark to examine two things. First, we are interested in whether they enter Canadian awareness through similar channels. If this is the case, we would see very few differences between French and English speakers since they would use the same or at least similar sources. Second, it offers an interesting perspective on the differences highlighted earlier. Canadians closely follow American politics and are very connected to that information environment.⁵⁹ Comparing awareness of US personalities to the two others tells us about the importance of the divides noted earlier.

Our analysis shows that the US ecosystem may enter Canadian news through different channels. We observe significant differences in patterns of recognition for both politicians and journalists. English speakers are more likely to recognize Ron DeSantis by 7 percentage points ($p<0.05$), Marjorie Taylor-Greene by 10 pp ($p<0.01$), Tucker Carlson by 14 pp ($p<0.001$) and Chris Wallace by 7 pp ($p<0.001$). While we observe no difference in recognition for Rachel Maddow,

59 Bridgman et al., "Infodemic Pathways: Evaluating the Role That Traditional and Social Media Play in Cross-National Information Transfer".

English speakers are more likely to be able to name her ($p<0.001$). There are no differences in recognition patterns for Alexandria Ocasio-Cortez between the two linguistic groups.

How do these results compare with the divisions between the French and English environments in Canada? Focusing on patterns of recognition for politicians, we observe that, on average, French speakers recognize more politicians from English Canada than from the United States. The difference between the two languages is only 2 percentage points for the English ecosystem, while it is 7 pp for the US. On the contrary, English speakers tend to recognize US politicians more than French ones. The difference between French and English respondents in the recognition of politicians from the French ecosystem is 24 percentage points on average. For example, English-speaking Canadians are less likely to recognize Blanchet than Ron DeSantis and Mélanie Joly less than Marjorie Taylor-Greene.

French respondents are aware of the English Canadian and US journalists at a similar rate (although the recognition baseline is low). A notable exception is Tucker Carlson, who French respondents recognize more than any journalists from English Canada. Again, English speakers seem closer to the US ecosystem than the French one, and are more likely to recognize US journalists than French-speakers except Chantal Hébert. This is likely because Hébert works in both official languages.

To further look at the previous findings' robustness and how other factors may influence these dynamics, [Figure 5.14](#) presents the predicted probability of recognizing between 0 and 3 politicians or journalists in each ecosystem. The predictors of interest are (1) the respondent's language, (2) if they are bilingual, and (3) their user type. Note that these regressions control for age, gender, education, region and ideology.

First, the results show large disparities between English and French speakers, as illustrated earlier. The predictions between the two are statistically different for both journalists and politicians.

Second, we observe some small but significant effects of bilingualism. People who report speaking French and English are likelier to recognize politicians and journalists than unilingual respondents. On average, being bilingual increases recognition by 10 percentage points ($p<0.001$). That means that speaking both languages reduces linguistic segregation in the Canadian information environment. However, it is important to note that the effect of bilingualism is small and is insufficient itself to balance the differential recognition patterns by language.

Finally, looking at the type of users, we observe important differences. Traditional and diverse media users are significantly more likely to recognize public figures than news avoiders for both journalists and politicians. Media consumption and exposure can increase people's awareness of their information environment as well as the broader ecosystem. The association with social media usage is less clear. On the one hand, we observe no differences between them and news avoiders for English and French Canadian politicians and English Canadian

journalists. On the other hand, they are more likely to recognize journalists from French-Canada and politicians and journalists from the US. This latter result might be a function of how social media networks are organised. Through social media, people may be exposed to more international news, thus increasing their recognition of US public figures.

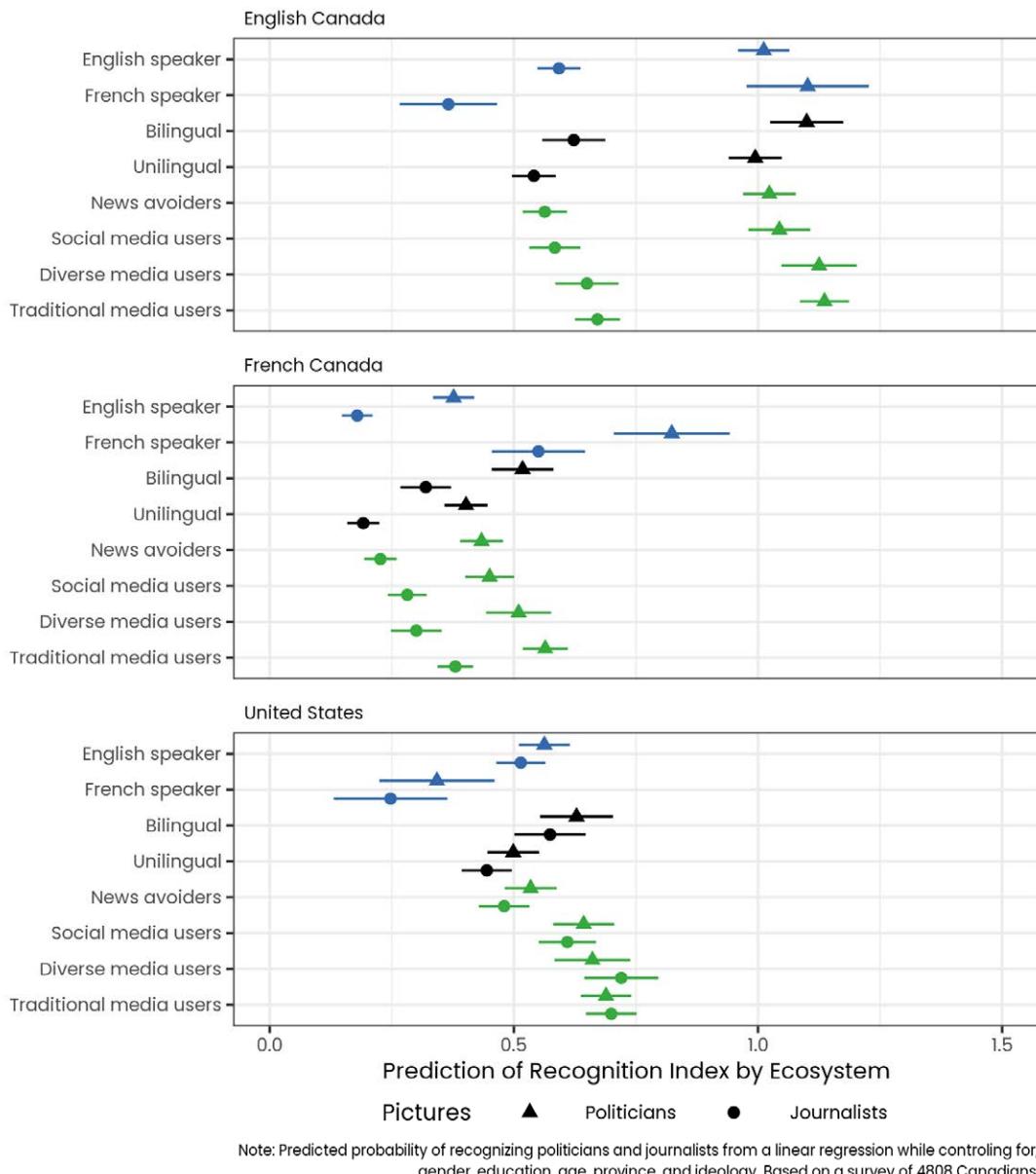


Figure 5.14: Predictors of recognition of politically relevant Canadians and Americans

Canadians have a low awareness of politicians and journalists. Across the sample, the mean number selection (out of 9) was 2 for politicians and 1.5 for journalists. The most selected figures were all recognized by less than 40% of the sample. Yet, once people selected a picture, they could in general name the person.

This low awareness of the political and media personalities was further exacerbated by the respondents' preferred information environment (proxied here by language). Canadians were significantly less likely to recognize public figures that were not in their immediate information environment. We find that this is less true for nationally influential politicians.

Importantly, we find that the gap in awareness between French and English speakers is wider as compared to that of the US. This is particularly true for English speakers who are more aware of the political and media ecosystem of the United States than French Canada. These results show that US media and political ecosystem information enters Canada unequally. Due to linguistic similarity, we should expect English speakers to be better than French speakers at naming US journalists and politicians. Yet, that should not mean that both languages should not be aware of personalities from the linguistic outgroup. Overall, results show that linguistic differences are a key driver of division in the Canadian information ecosystem.

We also find that two factors can mitigate these divisions. First, bilingualism increases the likelihood of recognizing public figures. Speaking both official languages offers a chance to be exposed to multiple media environments and the consequent ability to recognize more public figures than unilingual respondents.

Second, traditional and diverse media users are more likely to recognize politicians and journalists than news avoiders. Compared to social media, traditional streams of news consumption may be a better way to stay informed about a broader range of public personalities.

5.3.

Case Study: 2023 Canadian wildfires

According to the Canadian National Fire Database at Natural Resources Canada, an average of 8,000 wildfires burn over 2.1 million hectares of land across Canada annually. However, the 2023 “wildfire season” is unprecedented: almost 18.5 million hectares of land are burnt, an 1,133% increase compared to last year’s total count and doubling the worst year in Canadian history (1995 with 7.1 million hectares). In this case study, we investigate what Canadians believe about wildfires and how they get their wildfire information.

We generally find that latent attitudes and behaviours can be enormously impactful for where people consume information even during crisis situations. Moreover, their interpretation of extreme weather events is grounded in prior belief in human-caused climate change.

1. Whether or not you believe climate change is occurring due to human activity is highly correlated with believing that the 2023 wildfire season personally impacted you (just in Alberta) as well as your friends and family (across Canada). In other words, where you sit on climate change informs how you experience (increasingly common) extreme weather events.
2. Climate skeptics are generally far less likely to consult traditional media sources than those who believe climate change is occurring due to human activity. They tend to get more news from social media like YouTube.

Principal authors:
Thomas Bergeron and Blake Lee-Whiting

Compared to past years, many Canadians have had to directly live with the consequences of wildfires at varying degrees. Many people have had to evacuate their homes due to the direct threat of fire, whereas, for others, wildfire smoke drastically decreased air quality. According to IQAir, the top three most polluted cities on June 30, 2023 were New York, Montréal, and Toronto due to Canadian wildfires.⁶⁰

While the wildfires were actively clouding the skies, we surveyed Canadians about their experiences with wildfires. Using two surveys, one fielded during the 2023 Alberta provincial election ($n = 948$, from May 25th to May 29th) and another to a general sample of Canadians around the same time ($n = 4508$, June 9 to June 29), we examine what Canadians believe about wildfires and how they get their wildfire information.⁶¹

We also measure peoples' climate beliefs: whether people are "climate believers" or "climate sceptics." If people think climate change exists because of human activity, they are considered climate believers. Otherwise, respondents are considered climate sceptics, who either think climate change exists because of natural patterns, or that there is no solid evidence of climate change.

5.3.1. Personal Experience: "Not me, but others"

We first examine whether individuals reported being affected by wildfires in 2023. Most respondents report not being affected personally by the wildfires (approximately 70%). However, more people say they are affected in Alberta (36%), the epicenter of the wildfires at the time, than in the rest of Canada (25%).

We observe a similar trend for the perception that friends or family are affected by wildfires. Since Alberta was at the centre of the wildfire crisis while Albertans were taking the survey, we see that more people report knowing someone affected by the wildfires: 47% of Albertan's surveyed reported knowing someone affected, while 40% of the national population reported the same.

Importantly, we find an important divide between climate believers and skeptics in their experience of wildfires. In Alberta, but not in Canada, climate skeptics are 10 percentage points less likely to report that wildfires affected them personally. Similarly, we observe a difference between climate believers and skeptics when asking for friends and family (7 percentage points in Alberta and 9 in Canada).

These differences in how people see wildfires affecting them may be due to their perceptions of the impacts of climate change on their lives. However, it is important to note that experiencing wildfires does not make individuals more

60 For more information, or up-to-date statistics, see: <https://cifc.net/statistics>.

61 Both samples were provided by Dynata and administered on the Qualtrics survey platform. Both surveys use quotas based on gender, province, and age, based on the 2021 Canadian census data, to help make the samples generally representative of Albertans and Canadians, thereby increasing confidence in our findings. In addition to standard demographic questions, we asked respondents about their experience with wildfires, where they get their news to follow them, and their causes.

concerned about climate change. This finding fits with the scientific literature finding mixed effects regarding how experiencing climate disasters might influence individuals. Research suggests that experiencing extreme weather events, like wildfires, does not directly increase individuals' climate change awareness and mitigation attitudes. During these experiences, individuals need to cognitively connect the event to the cause of climate change for their climate change awareness and mitigation attitudes to be influenced.⁶² Our results demonstrate that climate attitudes also inform whether people think they are affected or not by extreme weather events.

5.3.2. Wildfire-Related Media Consumption

Where do people get their information on wildfires? Is the media diet any different among climate believers and sceptics? As shown in [Figure 5.15](#), climate believers strongly rely on traditional media (18 percentage points more than sceptics in Alberta and 27 in Canada) and news aggregators (14 percentage points more than sceptics in Alberta and 6 in Canada) to stay informed about wildfires, as compared to sceptics. The lack of trust of climate sceptics in traditional media shapes this difference: they are significantly less likely to trust traditional media than climate believers ($p < 0.01$). Climate sceptics are also more likely to consume news on wildfires on YouTube in Canada.

Climate believers and sceptics rely similarly on other sources: both groups follow governmental wildfire agencies (Wildfire Alberta and Canada), as well as get their news from social media (Facebook or Twitter) and friends and family. Interestingly, people seem to rely more on the provincial wildfire agency than its federal counterpart. Across both samples, few respondents report getting their news on wildfires from politicians (federal, provincial, or local).

Overall, although climate believers and sceptics share some informal news sources (e.g., friends or social media) with the exception of wildfire agencies, we observe important differences in their reliance on traditional sources (mainstream media and news aggregators). These differences are likely driven by how they trust traditional media. Importantly, we show that climate attitudes drive media consumption, which in turn modulates how people see wildfires.

Extreme weather events, like wildfires, are becoming increasingly common in Canada. Understanding the consequences of people's beliefs regarding them is central to better preparing for future disasters. We show that climate attitudes strongly shape how people engage with wildfires' information ecosystem. Climate skeptics are less likely to report being affected by the wildfires both personally and when asked about their close ones.

We show that Canadians largely use the same formal and informal sources to get informed about wildfires (e.g., government-led organizations, social media

62 Ogunbode et al., "Attribution matters: Revisiting the link between extreme weather experience and climate change mitigation responses".

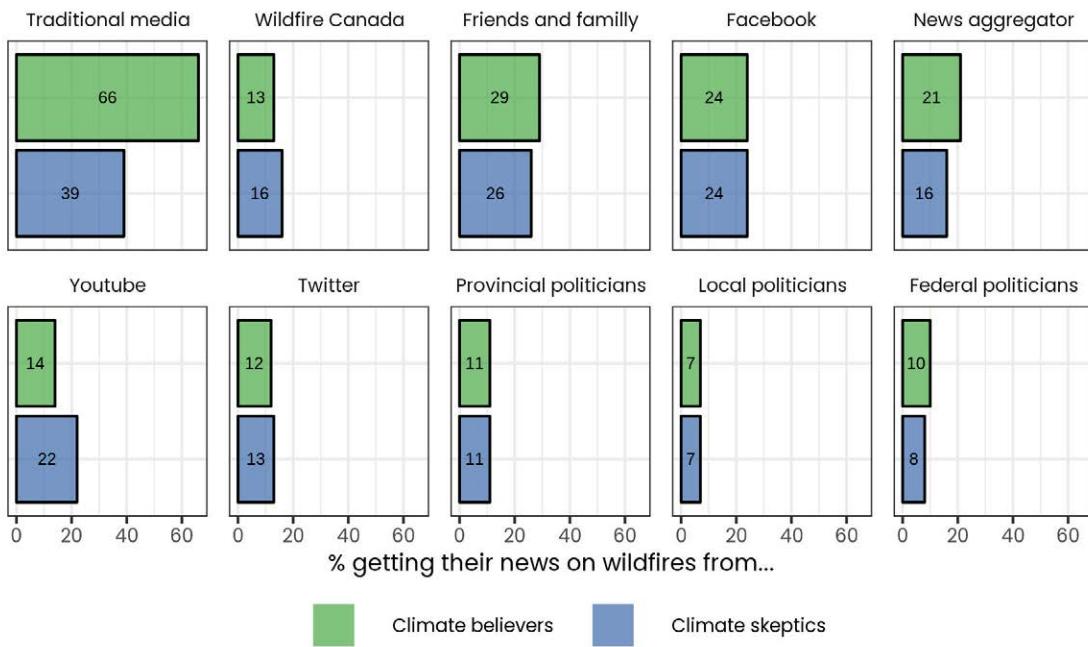


Figure 5.15: Media consumption on wildfires in the Canadian sample

or friends and family). However, we observe that climate skeptics do not rely on traditional media outlets to stay informed, contrary to climate believers. This difference, which is mostly driven by how trustworthy these groups see traditional media, will influence how people perceive wildfires. These results hint at us to believe that these two groups think differently about wildfires.

Overall, this case study sheds light on how individuals' worldviews affect their engagement with the media ecosystem. Latent belief (here, climate scepticism) can shape where people get informed and whom they trust in times of crisis where information is crucial.

5.4.

Case Study: June 2023 Canadian by-elections

On June 19th, 2023, four federal ridings in Canada held by-elections to fill parliamentary vacancies. We examine Canadian attitudes and behaviours within these four by-election ridings, explore exposure to information and misinformation, attitudes towards election security within the broader political climate, and trust in Elections Canada's management of elections. We find:

1. Canadians in these by-election ridings report seeing substantially more misinformation as compared to the general Canadian population. Those who took our survey reported being exposed to a wide range of misinformation topics, including items relating to international news — such as American politics and the war in Ukraine — as well as about Canadian political leaders, including Justin Trudeau and Pierre Poilievre.
2. Many Canadians highlighted their concern about the allegations of foreign intervention in the electoral process as a subject of misinformation. However, most Canadians, both in the general population and those in ridings holding by-elections, are confident that Elections Canada is safe from outside interference and are generally satisfied with democracy.
3. Those living in ridings holding by-elections are — at least temporarily — more politically active than those who are not.

Principal authors:

Thomas Galipeau, Blake Lee-Whiting, and Sara Parker

We surveyed 458 Canadians in the four by-election ridings between June 6th and June 19th. We specifically targeted respondents in by-election ridings by working with our sample provider (Dynata) and by confirming the area of residence within our survey. We compare by-election riding results to a national survey conducted during the same period (between June 9th and June 28th) of 4,808 Canadians from across Canada. The sampling approach for both surveys includes quotas based on gender, province, and age, informed by the 2021 Canadian census data.

All four by-election ridings were considered safe or stronghold constituencies for the incumbent political parties, and, as widely predicted in the media, each incumbent party was re-elected.⁶³ Election results are available from [Elections Canada](#). Each of the four by-election ridings is described below.

A Liberal stronghold for the last 60 years, aside from an NDP victory in the 2011 'Orange Wave', [Notre-Dame-Grâce - Westmount](#) (NDG) is located in the western part of Montreal Island. The Liberal candidate, [Anna Gainey](#), won the by-election with a clear majority of total votes cast (50.9%). The Conservative Party, NDP, and Green Party each garnered roughly 13% of the vote. NDG has a higher concentration of Anglophones compared to the rest of Montreal and Québec, which may contribute to distinct political attitudes.⁶⁴ Furthermore, NDG had the lowest voter turnout rate of the four 2023 by-election ridings: only 29.93% of registered voters participated representing an approximately 50% decrease in participation compared to the 2021 general election.

[Oxford](#) is a rural riding in southern Ontario, encompassing a small portion of Brant and the surrounding region. Considered a safe seat for the Conservative Party, former Conservative candidate Dave MacKenzie has won the last seven elections. The new Conservative candidate, [Arpan Khanna](#), won the election, but by a slimmer margin than expected – only 5.5% ahead of Liberal candidate, David Hilderley.⁶⁵ Oxford's voter turnout was also low, with only 39.81% of Oxford's eligible voters participating in the election. Non-voters in Oxford expressed a wide variety of reasons for not casting a ballot, from "[my] vote won't matter" and "[a]ll elections are rigged" to "I have absolutely no idea" and "busy".

[Portage-Lisgar](#) is a rural riding located in the south of Manitoba near the American border. This by-election was of particular interest nationally because [Maxime Bernier](#), the leader of the People's Party, was a contender. Portage-Lisgar has been a Conservative stronghold since 1997⁶⁶, and predictably elected the Conservative candidate, [Branden Leslie](#), with 64.9% of the vote, while Bernier came second with 17.16% of the votes. Overall, 45.5% of the eligible voters participated in the election .

Winnipeg South Centre is an urban riding in the city of Winnipeg. This riding is

63 Djuric, "Here's what observers are watching for in Monday's four federal byelections".

64 [2021 census data](#) indicates that English is the first official language spoken for 57% of residents compared to 12% in Québec more generally.

65 Leon, "Q+A: Oxford MP-elect Arphan Khanna on unexpectedly tight win".

66 Portage-Lisgar elected Reform Party candidates from 1997 to 2002.

considered a Liberal stronghold: since 1988, only one election (2011) has resulted in a non-Liberal candidate winning. The Liberal candidate, [Ben Carr](#), won with 55.5% of the vote, but only 36.82% of the voters went to the polls.

5.4.2. (Mis)Information

Recent Canadian federal and provincial elections have borne witness to misinformation, largely shared in online spaces.⁶⁷ We asked Canadians about their online news consumption habits. To facilitate analysis, we aggregated the categories into two groups. Daily and weekly consumers were categorised as frequent news consumers, while “monthly”, “rarely”, and “never” consumers were grouped as infrequent. As compared to the national sample (60%), by-election respondents (73%) were more likely to consult at least one news outlet online weekly. However, when we account for confounding variables (age, gender, education, and province), this difference fades.

While citizens in the by-election appear to be more informed because they tend to be more frequent news consumers, many voters mentioned that they still lacked information to cast a vote with which they would be satisfied. While by-election citizens seem to be more frequent news consumers, by-elections and the candidates featured in them remain an overall low-salience subject. For instance, one Portage-Lisgar voter told us, “List the candidates in the local paper or online with pictures with bio and what they are,” when asked how to improve by-election organisation. Furthermore, a non-voter from Oxford said, “I have no idea what any of the candidates stand for” when asked why they did not vote. Some other voters underlined how busy their life was and how little time they had to pay attention to politics, for example: “I’m so busy at times I forget to read up on what’s going on in today’s society.”

We asked respondents across Canada and in the four by-election ridings if they remember seeing misinformation in the past week during the election period. Both surveys were fielded at similar times, meaning they were both conducted during the by-election campaigns. For more precision, we filter the data to match the exact dates of the by-election survey with the general population survey. Our question captures misinformation awareness during an electoral period both within and outside the by-election ridings. We display results for this question in [Figure 5.16](#). We found that Canadians within by-election ridings were much more likely to report seeing misinformation than the general population sample. Using regression analysis which can account for some other explanations, we observe a 7 percentage point difference ($p < 0.05$) meaning that by-election residents feel significantly more exposed to misleading information. Our data thus suggest that during an election period, awareness of misinformation may increase, but only to a moderate extent.

67 Bridgman et al., “Mis- and Disinformation during the 2021 Canadian Federal Election”; Lavigne et al., “Analyse Du Rôle de La Mésinformation Lors de l’élection Provinciale Québécoise de 2022”.

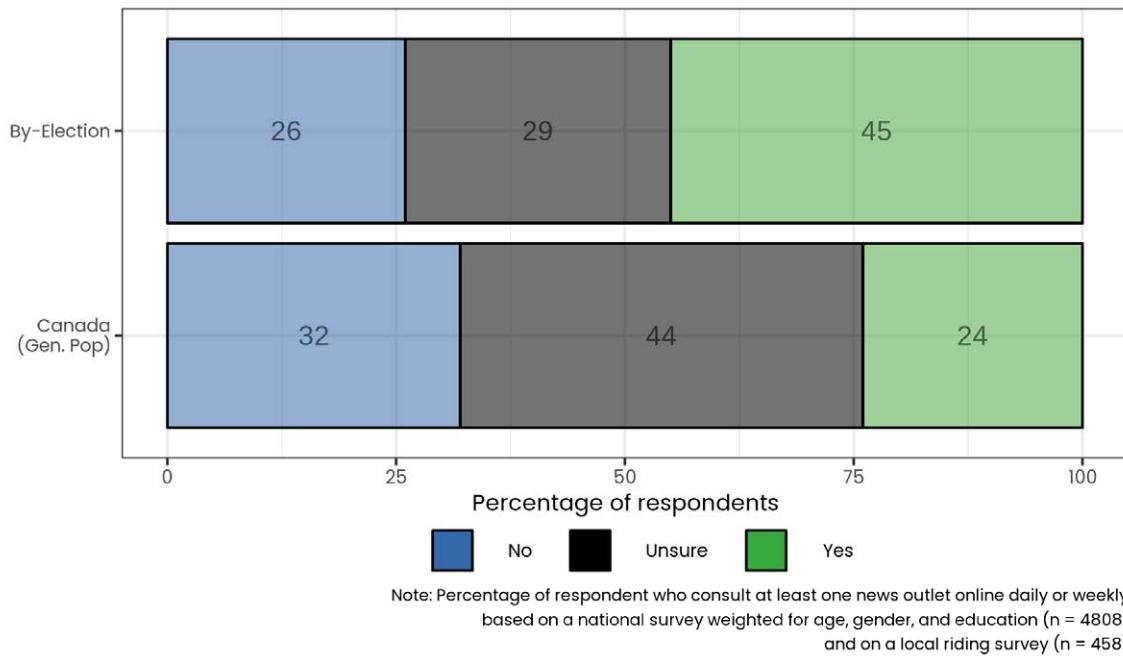


Figure 5.16: Self-reported exposure to political misinformation for respondents in by-election ridings and across Canada

We further asked respondents who reported seeing misinformation an open-ended question (“can you please briefly describe the misinformation that you saw?”) to see what kind of misinformation Canadians see online and to get a better sense of what Canadians consider to be misinformation. Three major themes emerged in both the by-election and the general population surveys: international news, including Donald Trump, the Ukraine War, or China; false claims about Canadian party leaders or attributing false claims to party leaders; and news-related content, such as misinformation about the Canadian wild-fires, foreign intervention into Canadian elections, and COVID-19 related issues. Misinformation themes do not vary across the by-election and the general population respondents. We note some prominent examples below:

International News

- Oxford voter: “Donald Trump continuing to spread Election Lies and he also continues downplaying his crimes”
- Canadian: “There is lots of misinformation about the Republicans in the US. Too much to even start to put down.”
- Canadian: “Russian propaganda about war with Ukraine”

Canadian Party Leaders

- Oxford voter: “Anything posted/spoken by the Liberal party. Everything they speak of is pure nonsense”
- Canadian: “anything that comes out of Pierre Polievre mouth”

- Portage Lisgar voter: "I cannot think of any, However J. TRudeau gives out lots of False Information. Especially about the budget and the Debt."
- Winnipeg south centre voter: "I saw Pierre Poilievre make incorrect statements about David Johnston, Justin Trudeau and the liberal government with respect to Chinese interference in elections."
- Winnipeg South Center voter: "Anything that Justin Trudeau and his Liberals spout as well as CBC"
- Canadian: "Trudeau accepted funds from the Chinese"

Other news-Related Content

- Oxford voter: "exaggeration of carbon tax, crime rates and general national conditions"
- Oxford voter: "That vaccines cause harm."
- Portage Lisgar voter: "Russia blaming Ukraine for attacks."
- Winnipeg South Center voter: "news that China might be interfering with the byelections coming up"
- Canadian: I saw misinformation "about the cause of wildfires not being related with climate change."
- Canadian: I saw a misinformation "about how COVID vaccines do not do anything to stop infections or lessen symptoms"

5.4.3. Institutional Trust

A major political issue during the by-elections was allegations of foreign intervention in Canadian elections, potentially undermining electors' trust in key institutions like Elections Canada.⁶⁸ In the general population survey, several respondents expressed concern about Chinese government interference, asserting that China had influenced "the last two federal elections." A respondent noted that a piece of misinformation they encountered was the "spin[s] that the Chinese gov't did not try to interfere in Canadian Politics. Foreign gov'ts regularly try to gain advantages through various levels of interference." In the by-election survey, one respondent from Winnipeg South Centre said: "news that China might be interfering with the upcoming by-elections." Another example comes from a respondent in NDG who, when prompted about what Elections Canada could do better when organising by-elections, said: "Être garant que tous les résultats sont fiables" ("Ensure that all the results are reliable").

Election interference and integrity are salient issues among the Canadian general population. Indeed, when doing simple natural language processing, we find that election safety. Citizens are concerned about how elections are run, and

⁶⁸ Major, "Intel breakdowns and 'black holes': How foreign interference became a political flashpoint".

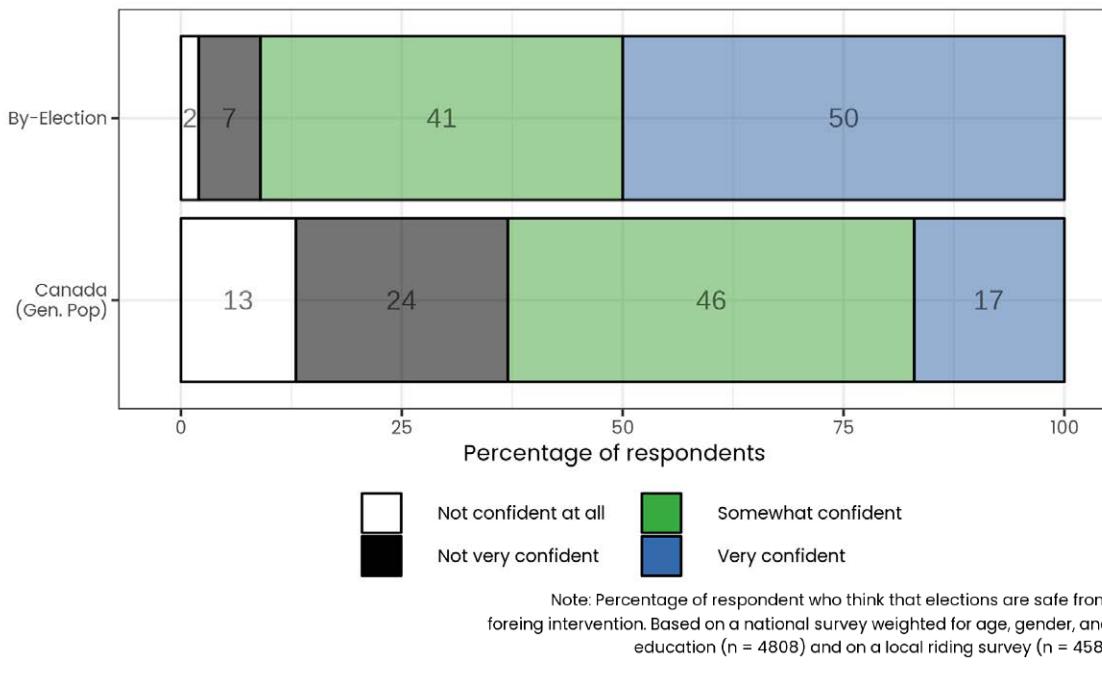


Figure 5.17. Perceptions that Canadian elections are safe from foreign interference for respondents in by-election ridings and across Canada

they want their democratic institutions to be transparent and reliable. [Figure 5.17](#) examines this question by comparing the general population and the by-election riding respondents.

Most Canadians are at least somewhat confident in our electoral institutions, without clear differences between age groups. For instance, an NDG voter said that they were “satisfied with the election experience in NDG.” However, there is still a substantial number of Canadians who remain unsure about the possibility of foreign interference. Comparatively, people in the by-election ridings are very confident in Elections Canada, with few respondents expressing low trust. Exposure to the democratic process (such as via participation in elections) may, therefore, increase confidence in electoral institutions, compared to an abstract feeling related to the news cycle. Another alternative explanation could be that by-elections do not receive the same salient treatment compared to general elections. Hence making people less distrustful when thinking about the alleged interference. While there is a substantial age difference in the by-election sample between the categories, an overwhelming number of participants (90% in all age categories) are confident that the elections were safe from foreign interference.

We also compared levels of satisfaction with democracy. A majority of Canadians are either very or fairly satisfied with democracy as a whole (65.6% in the general population and 77.2% in the by-election on average). [Figure 5.18](#) compares data from the general population and from the by-election ridings by age group. We find the pattern is similar to the trust in the electoral institution, suggesting a connection between the two in the citizen’s minds. The pattern holds even when accounting for age, gender and education. Overall, our research suggests that Canadians are at least fairly satisfied with Canadian democracy.

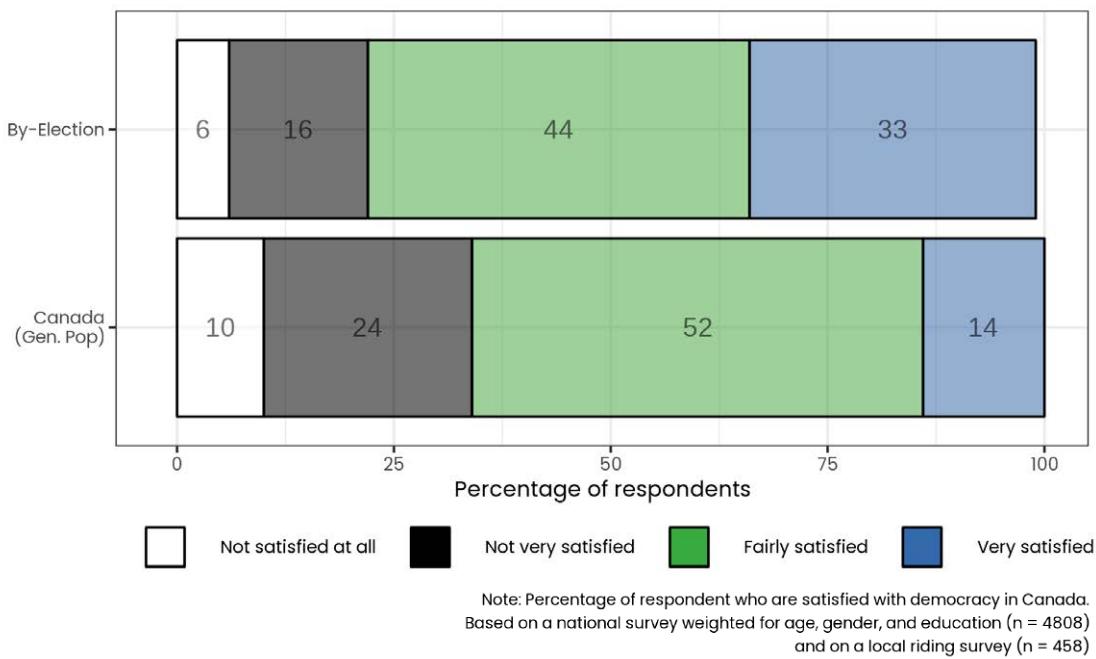


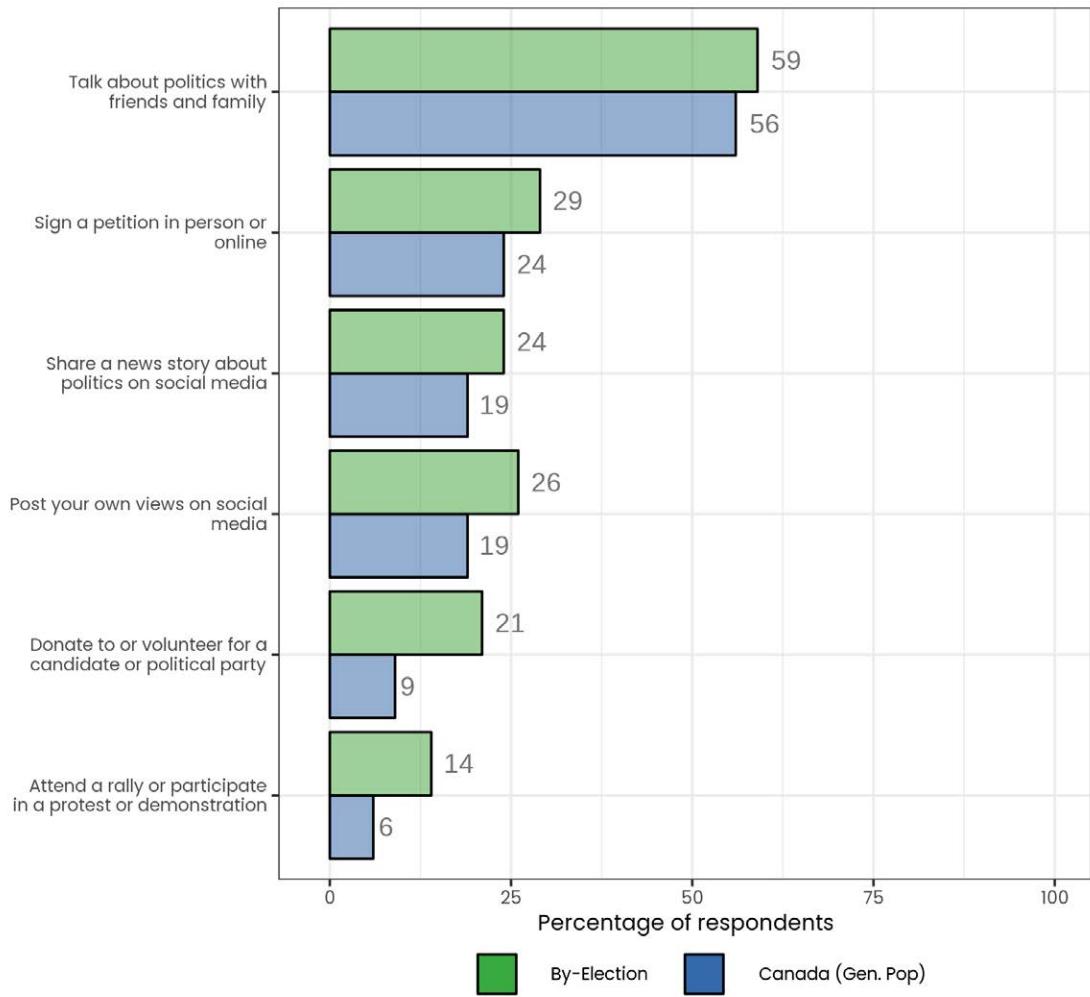
Figure 5.18. Satisfaction With Democracy for respondents in by-election ridings and across Canada

5.4.4. Participation

Elections are not only a top-down communication exercise where parties and candidates try to persuade voters to vote for them. Citizens talk to each other, participate in events, share their views online, thus directly and indirectly affecting the political behaviour of others. We also evaluated the political participation of respondents to see if those experiencing a by-election were more likely. general, levels of political participation appear to be higher in the population involved in the by-election, supporting the notion that elections tend to foster participation in other political activities.

5.4.5. Canadian By-Election Media Environments

Turnout in each by-election riding was quite low, while some electors felt some distrust toward electoral institutions, many were busy or were simply not interested. To better understand what is driving low turnout rates, we asked the respondents of this study to describe in a few words what Elections Canada could do to improve the voting experience during by-elections. Voters had many ideas to improve the electoral process to make voting easier. In this case, 'easier' does not just mean more polling stations or smaller lines but requires making voting more accessible for all citizens. For example, one NDG voter suggested that Elections Canada "make sites easy to get into for physically challenged groups." Another way of making elections more accessible for constituents would be to implement electronic voting; for example, one NDG voter argued that "it is more convenient to set up an online election." One Oxford voter suggested different voting means to improve turnout: "Provide more flexible voting methods: Elections Canada can explore more voting methods, such as mail-in voting, early voting



Note: Percentage of respondent who engaged in the following political activities in the past 12 month. Based on a national survey weighted for age, gender, and education (n = 4808) and on a local riding survey (n = 458)

Figure 5.19: Political participation in the last twelve months for respondents in by-election ridings and across Canada

and online voting, to make it easier for voters to vote within a limited time frame. This will help increase voter participation and turnout.” Evidently, voters want flexibility to accommodate their busy life schedules.

Another “cost” of voting is gathering information: voters must forgo leisure activity and instead gather information about their vote choices. Many voters expressed the need to be informed to cast a meaningful vote. For instance, one Oxford voter expressed that they wanted online streamed debates between the candidates and some form of summarised candidate information: “Hold televised debates and allow YouTube viewing on demand, print list of candidates and parties on voter information cards, provide voter cards further in advance, offer secure on-line voting.” Another from the same riding recommended Elections Canada to “send out pamphlets regarding the candidates’ platforms” to make up for the lack of accessible, reliable information about the candidates. The overall message from citizens here is that they do not have the time or motivation to seek electoral information. They would rather acquire it more passively without

getting on their computers or grabbing a newspaper. In other words, they want information to be given to them. Furthermore, they want more information about the candidates themselves rather than just the parties, demonstrating that some voters care much about local politics.

Voting is also about believing that one's personal vote will have an impact. While not directly related to Elections Canada, many Canadians expressed that their vote would have a minimal impact on the final outcome. One Oxford non-voter said their "vote won't matter," while one from NDG lamented that their "favourite party won't be elected."

While many people had constructive criticism to help improve Elections Canada's management of by-elections, some voters also thought that the process was well-organised and did not seem to see room for improvement. For instance, one Winnipeg South Centre voter said, "I voted yesterday in the advance poll. Everything went as planned. If you read the information provided by Elections Canada on your voter ID card and the booklet sent out, you should have no problem." A voter from NDG had a similar reaction to the advance voting: "Nothing [could be improved]. We got a notice and are voting early tomorrow. Info so far is good."

The main goal of by-elections is to ensure that vacant seats in the House of Commons are filled, and all Canadians are adequately represented. However, by-elections also represent an opportunity to assess how Canadians engage with political processes by comparing data from within those specific communities to the general population. These differences and similarities provide important insights in how election campaigns affect citizens

Canadians within by-election ridings report seeing more misinformation, compared to the general Canadian population. Respondents report misinformation most frequently on international news topics, such as American politics and the war in Ukraine, as well as information about Canadian political leaders like Justin Trudeau and Pierre Poilievre.

Many Canadians highlighted their concern about the allegations of foreign intervention in the electoral process as a subject of misinformation. However, in the aggregate, most Canadians (both in the general population and within the by-election ridings) are confident that Elections Canada is safe from outside interference and, at a higher level, are satisfied with democracy. Furthermore, Canadians are generally politically active, particularly through talking about politics with their online and offline networks or attending political demonstrations.

6. Discussion

DISCUSSION

This report has focused on investigating and quantifying elements of the Canadian information ecosystem. To do so, we fielded and compared four surveys conducted in 2018 and 2023, and collected posts, content, and comments across four major social media platforms: Facebook, YouTube, Instagram, and TikTok. We are able to provide some definitive sign-posts of the Canadian information ecosystem.

First, **most Canadians are inattentive to politics**. Canadians do not regularly consume political news, generally have low (and decreasing) levels of political knowledge, and have poor awareness of important political figures in Canada and the United States. It is difficult for scholars and those whose professional lives revolving around the political comings and goings of the country to understand at what point Canadians pay only minimal attention. The leader of the official opposition is recognized by only approximately 35% of Canadians, the majority of Canadians do not regularly consume any news outlet, and common measures of political knowledge (e.g., what is the name of the Federal Finance Minister) show low and declining awareness of politics. Just over half of Canadians have heard about one of the most important Canadian political stories in 2023: Chinese state interference in Canadian politics and elections.

Second, **Canadians are very active across social media platforms but we see inequality in conversation**. Canadians have multiple social media accounts and consume large volumes of social media content. Social media is largely being used to share non-political content, however, and most Canadians only see a trickle of news and political information through this browsing and engagement. The platform most used by Canadians to get political information and news, Facebook, contains little political content and removing news does not appear to have uniquely contributed to an exodus from the platform or even a decrease in activity on politically active groups. While the absolute number of Canadians who engage with political content online is low, there is a large and active conversation across major social media platforms related to Canadian politics. The vast majority of Canadian politicians have multiple social media accounts, regularly post, and spend time engaging on these platforms. This conversation is unequal, however, with a small number of accounts receiving a highly disproportionate share of the attention, engagement, and impact on the political discourse.

Third, we do **see an increase in use of social media for news**, with a rapid rise of TikTok as well as an increased use of Instagram, WhatsApp, Reddit, and Snapchat. Those who use social media for news tend to be less trusting of traditional media and are less likely to participate in politics. As might be expected given the rise of social media use, we observe that trust in both Canadian and international media is rapidly decreasing. Over the past five years, this represents an approximate 15% decrease in media trust. In the past we have highlighted how a high-level of trust in traditional media outlets makes the Canadian system resilient to misinformation as overall trust in the media remained high. We are no longer confident that is the case. Despite this, several large Canadian news outlets—notably Global News

and CTV—have been able to amass large social media followings on YouTube and TikTok respectively, and capture a large percentage of politics and news-related engagement.

Fourth, we find that the **online discourse among provincial and federal politicians across TikTok, Facebook, and Instagram is not highly segregated on partisan lines**. The regional and linguistic characteristics of Canadian politics is reflected in the online conversation, with ideology not completely determining the structure of the Canadian information ecosystem. While certain topics of discussion do tend to be associated with some political party families more than others (e.g. left parties such as the NDP tending to focus on *health* more than any other single topic), the rest of the political spectrum tends to discuss similar issues, with high emphasis on international politics and issues explicitly related to government and governing.

Each of these four features: **attention to politics, activity and equality in the online conversation, extent of algorithmic and social news consumption, and polarization and segregation amongst politicians in the information ecosystem**, has been measured in this report and can be benchmarked against going forward. To do so, survey and digital trace data will continue to be collected.

This study has two important constraints, **1) data limitations and 2) analytical and conceptual limitations**

First and foremost, The data underpinning this report is collected from social media platforms using a variety of methods, including Application Program Interferences and computer-assisted web browser collection. The Media Ecosystem Observatory is collecting, collating and providing data to Canadian researchers interested in the dynamics of social media platforms. While this represents a large step forward, we continue to be severely limited by the data that platforms willingly share or, through neglect or disinterest, do not sufficiently protect. Notably, we did not collect X/Twitter data for this report. X/Twitter has been overrepresented in research over the past decade as they provided the best data access of any major social media platform. However, that is no longer the case and indeed they have become hostile to external research. Nevertheless, X/Twitter continues to play an important role in the elite political conversation in Canada and subsequent cross-platform research should endeavor to collect data and integrate the activity of political influencers of X/Twitter into the multi-graph and understanding of the Canadian information ecosystem.

The survey data has similar restrictions, where certain groups of significant interest (i.e. geographically or linguistically bounded communities) are difficult to survey in a representative manner. This is an ongoing challenge and a near-existent threat to attempts to understand, for example, the effects of Chinese-state interference on Canadians of Chinese descent.

Second, there are analytical and conceptual limitations for classifying and describing information ecosystems. Academic research has begun to move forward on comparing information ecosystems in recent years, but a standard set

of measures, analytical tools, and approaches has not even begun to be formalized yet. Thus the measures described in this text are drawn from an eclectic set of literatures and are simply a first attempt to provide the ability to compare information ecosystem health over time and across jurisdictions.

Such a common set of concepts and tools are necessary to help inform the policy process and to provide a rich understanding of when and under what conditions platform design, civic literacy, government initiatives, and other attempts to fortify the information ecosystem are worthwhile.

Afterword from the Research Team

AFTERWORD FROM THE RESEARCH TEAM

Our team came together over the course of 2023 with the intention of building an observatory of the Canadian information ecosystem. This report, rather than an end in and of itself, constitutes an important milestone on the path to that objective. Although it showcases current capabilities and delivers some important preliminary insights on the status of Canadian political discourse, one of the report's primary objectives has been to act as a point on the horizon to which our team's efforts could converge. Now that we have arrived at that point, we can pause to reflect on what we have learned, before turning to the next horizon.

From the outset, our vision for an observatory has been to survey Canadians about their media consumption habits and political attitudes and behaviours, monitor how Canadians engage with content, and with each other, in public spaces online, and then integrate these two kinds of data to achieve a multi-dimensional view of Canadian political discourse. Each of these three steps—the administration of surveys, the automation of digital trace (social media) data collection, and the integration into a hybrid knowledge product—has presented unique challenges and discoveries. We reflect on each in turn.

Reflections on digital trace findings, challenges, and next steps

To contribute to this report, the digital trace team created a full-stack web application to collect, extract, transform, load, and analyze social media data from four major social media platforms (Instagram, Facebook, YouTube and TikTok). Our data collection philosophy rests on the hypothesis that social media, just like traditional news media, is inherently unequal. Both legacy and new media exhibit hyperconcentration of influence and narrative power, with just a minority of outlets or influencers dominating the discourse. Accordingly, even if it were technically and ethically feasible to track everyone in Canada's digital public, it is unnecessary. Instead, we shortlist the most politically influential individuals and organizations, and identify the handful of platforms with the largest usage among Canadians. By tracking only these influencers on merely this subset of platforms, we are nevertheless able to characterise Canadian political discourse fairly well.

On the merits of our approach, we use a blend of quantitative and qualitative methods. The quality of our lists of influential Canadian entities rests on domain knowledge and expert judgement. In the next chapter of our work, we hope to rely on domain experts throughout the CDMRN and beyond to enrich and expand our seed lists. Automated methods can also help enrich seed lists by finding new entities that, in the data, substantively interact with those already on our lists.

On the other hand, we must ask what we miss with this approach, and how we can quantify that. How close is our 'first approximation' of Canadian political discourse to the real thing? How do we narrow the gap between reality and our representation of it, and where is the right balance between effort exerted and insight yielded? If we were building seed lists at random, we could quantify the degree to which our approximation of the discourse diverges from reality by

iteratively growing the seed lists and looking for signs of convergence on key statistics. Since we are building our lists from expert selection, however, we must ask instead whether our findings about the discourse as a whole match the existing literature, whether there is consistency between the digital trace and survey components of the project, and whether our findings are consistent with what we already know as Canadians.

While we can agree that Canadian social media is profoundly unequal, however, the matter of fragmentation, especially as it takes the form of partisanship or polarisation, is a more elusive concept. Social networks of all kinds, online and off, are well known to exhibit *homophily*, or the tendency of ‘birds of a feather to flock together’. The fact that, say, NDP politicians share the same domains, hashtags, commenters, subscribers, or chat about the same topics, is neither surprising nor inherently alarming. Presumably at some point, a discourse crosses over a threshold from acceptable levels of homophily to something more insular and worrisome. As we track fragmentation going forward, we may be called upon to define this inflection point.

To collect data from social media platforms, we have relied thus far on authorized APIs wherever possible. As highlighted by Meta’s ban of Canadian news sharing, however, the private interests of social media corporations, and the public interests of our research community, are not aligned. Going forward, we must plan against the possibility that APIs may become more limited, or closed to researchers all together.

Reflections on survey findings, challenges

Survey research is a versatile methodology. We can track attitudes and behaviours over time, or provide near real-time insights during critical periods such as elections or extreme weather events. We can collect data representative of the Canadian population writ large, or conduct targeted sampling to learn from sub-populations of interest. Most importantly, we can efficiently provide quantitative data and qualitative insights with a confidence that our data represents the opinions and attitudes of Canada.

For this report, the survey team has done a little of everything in an attempt to best capture the Canadian media ecosystem. We’ve surveyed a representative sample of nearly 5,000 Canadians about their experiences and attitudes towards media in Canada, and then compared these results, using identical measures, to data from nearly 3,000 Canadians that we collected in 2018. We polled Albertans about their experiences during an important election and we interviewed Canadians in four by-election ridings to examine the electoral context of misinformation in Canada. Our research, we hope, provides a rich overview of what Canadians really believe.

Of course, survey research is not without its challenges. Our data is not always as accurate as we would like because respondents are sometimes inattentive or forgetful. Survey-takers may not remember the media that they consume each week. Other times, particularly when we are interested in sampling a group within

Canada, such as people in a specific federal riding, we get fewer and less representative respondents than we were hoping for. In response to these challenges, we innovate. We design better questions intended to help respondents easily recall their media consumption. Working with our sample providers, we utilize new sampling techniques intended to maximize responses. We translate surveys to increase reach. We streamline questions to cut down on respondent fatigue.

Substantively, our findings suggest that people in Canada have measurable preferences. Partisan leanings predict attitudes towards wildfires, climate change, and associated media. Languages spoken predict media consumption and political awareness. Political knowledge shapes the ability to recognize misinformation online. While not entirely predictable, experiences and attitudes are generally measurable if done with care.

Going forward, we need to keep innovating. How can we better measure Canadian attitudes and experiences? How can we better respond to emergent political events? Who should we survey in Canada? How should we present our findings to reach a broader audience? How can we best use our surveys to inform public policy? And, of course, above all else: what are the right questions?

Reflections on integrating survey and digital trace approaches to data

Doing rigorous empirical work using one source of data (either survey or digital trace) is challenging. Attempting to combine the two in meaningful and interesting ways that sum to more than the parts is extremely difficult and rarely done in the social sciences. However, this challenge must be met. It must be met because the most important claims about the relationship between the information ecosystem and democracy simply cannot be answered by one method in isolation.

An important example is mis/disinformation and foreign interference where much of the fascination and fear centers on the theory that (repeated) exposure to false information causes people to modify their attitudes or behaviors (including voting decisions, for example). Psychology, through the familiarity principle, teaches us that repeated exposure can make individuals more familiar with an idea and potentially more accepting of its veracity. But that simplistic understanding of the human psyche cannot evaluate how familiarity plays out in the embodied and digital worlds where individuals are bombarded by a cacophony of different and often conflicting messages.

Moreover, the causal interplay between information exposure and the formation of political views is confounded by selection. In particular, Humans are not randomly exposed to information, but rather seek out specific kinds of information aligned with their predispositions. Among various strategies to account for this selectiveness, tracking the same individuals or groups over time with longitudinal or panel surveys is crucial. While digital trace data can help render the information landscape in which Canadians are embedded, only by combining them with survey data can we begin to make assertions about the causality of information on Canadian political attitudes.

We do not consider our project to be anywhere near complete. Building and sustaining a multi-dimensional view of Canadian political discourse is necessary to test and develop ideas about the relationship between the information ecosystem and democracy and to help better guide Canada towards a healthier information ecosystem. On these, the Media Ecosystem Observatory is hard at work.

Appendix

7. Appendix

Methodological details

This report employs statistical and descriptive methods using data drawn from surveys and social media platforms. This section provides additional methodological details beyond those found in the main body of the text.

7.1. Survey Research

We conducted four surveys to gauge Canadian attitudes and experiences related to the media ecosystem.

7.1.1. STATE OF THE CANADIAN MEDIA ECOSYSTEM ROUND 1

We conducted a survey between August 30 and September 24, 2018, with a representative sample of 2,841 Canadians provided by Qualtrics' online panel and administered via Qualtrics survey software. This survey utilised quotas based on gender, region, and age, and subsequent analysis conducted with this utilised weighting based on age, gender, and education. This survey asked general questions about media consumption, political attitudes, and policy preferences related to contemporary Canadian news.

7.1.2. STATE OF THE CANADIAN MEDIA ECOSYSTEM ROUND 2

For the 2023 State of the Canadian Media Ecosystem survey, we surveyed 4,808 Canadians answered between June 9 and June 28. The survey sample for this project was provided by Dynata, and administered on the Qualtrics survey platform. This survey also utilised quotas based on gender, region, and age, and analysis using age, gender, and education weighting. This survey repeated some questions from the 2018 State of the Canadian Media Ecosystem survey, in addition to innovative, new questions intended to gauge contemporary trends in the Canadian media ecosystem.

Across these two State of the Canadian Media Ecosystem surveys, we surveyed a total of 7,649 Canadians.

7.1.3. JUNE 2023 BY-ELECTION SURVEY

We surveyed 458 Canadians in the four by-election ridings between June 6th and June 19th, 2023. We specifically targeted respondents in by-election ridings by working with our sample provider,, and by confirming federal riding within our survey instrument.. The sampling approach for this survey includes quotas based on gender, province, and age, informed by the 2021 Canadian census data. Despite the small number of respondents, compared to a national general-population sample, the sample represents a diverse range of gender and income groups.

7.1.4. ALBERTA ELECTION SURVEY

We surveyed 948 Albertans between May 25 and May 29 with a survey sample provided by Dynata, and administered on the Qualtrics survey platform. This survey uses quotas based on gender, province, and age, based on the 2021 Canadian census data, to help make the samples generally representative of Albertans, thereby increasing confidence in our findings. In addition to standard demographic questions, we asked respondents about their experience with wild-fires, where they get their news to follow them, and their causes.

7.2. Digital Trace Data

We begin by identifying Canada's political influencers on social media. We build *seed lists* (described shortly) of politicians, news and civil society organisations, and social media influencers, and systematically identify their social media handles on up to four social media platforms: Facebook, Instagram, YouTube, and TikTok. We then retrieve all content (whether text, image, or video) posted by these handles on all four platforms for the study period (January 1, 2023–October 1, 2023). Wherever possible, we also retrieve comments on content posted by other social media users.

We then organise these data in two ways: by grouping political influencers into communities, and by grouping their content into topics. For communities, we rely either on explicitly defined groupings (political party, province, etc), or implicit groupings that emerge from their social media activity (influencers who share a common readership on Instagram; influencers who use the same hashtags on TikTok, etc). For topics, we apply large language models (LLMs) to classify text captions as belonging to topics. Analogous to community detection, we rely either on explicitly defined topics (crime, misinformation, inflation, wildfire) to which the LLM assigns text captions; or else on implicitly defined topics, where the LLM discovers co-appearing vocabulary like "mortgage, Toronto, crisis, first-time buyers", from which we can deduce the topic to be "housing/inequality".

7.2.1. CROSS-PLATFORM COMPARISON

Information ecosystems are innately multi-dimensional, i.e. they are composed of multiple social media platforms, or 'layers.' Members of the ecosystem (e.g. social media users) are often active on multiple layers, sometimes in distinct ways. For example, a news outlet may post frequently on TikTok but rarely on YouTube, or a politician may emphasise different issues on Instagram compared to Facebook. Additionally, current events may have distinct effects on each layer: a viral news story on one platform may only make small waves on another. To truly understand the complexity of this ecosystem, we must analyze across platforms. Specifically, this involves analyzing all social media profiles of Canadian political influencers. By doing so, we can identify how these layers are connected or disjointed – and begin to understand the Canadian digital media ecosystem.

7.2.2. GENERATING SEED LISTS

Political discourse on social media is well known to be *skewed*, meaning that a small percentage of content creators tend to garner the lion's share of engagement. These political influencers are an elite group consisting of politicians, news outlets, journalists, advocacy groups, public figures, and influencers native to social media itself.

While one can rightly problematize the existence of such an elite class of political commentators, and the tremendous inequality of voice they signify, this essential skew of influence can also be exploited by researchers to parsimoniously characterise the discourse. Specifically, while tracking millions of social media accounts is typically infeasible, tracking a few thousand accounts that represent to a first approximation the entire political spectrum is entirely tractable.

Data collection began with the generation of seed lists. Seed lists are, in essence, a vast collection of accounts for all individuals within the scope of the political influencers we track across platforms. A seed is an entity: either a person or an organisation. A seed has seed handles, i.e. an entity may have one or more accounts (handles) across platforms. A seed list is the collection of accounts (or handles) that stem from that person across platforms. So, a seed (e.g. a politician) can have many accounts (e.g. Facebook, Instagram and Twitter X accounts). Data collection begins by identifying the scope of politically influential we would like to sample. For the purposes of our research, we limited this to politicians, news organisations and political influencers. We then collect seed lists for every seed (entity). For each account in the seed list, we collect all posts within our sampling period. These posts become the data we use for analysis of the ecosystem.

7.2.2.1. POLITICIANS

We started with the names, constituencies, parties, and provinces of all elected federal and provincial/territorial representatives in Canada. This data is publicly accessible on Open North's [Represent Civic Information API](#). However, not all lists of provincial/territorial representatives were current as of October 2023; for provinces/territories that had had an election in the past year, we used tables found in news coverage of the election results.

We then automatically queried Google with each representative's name, political party, the social media platform of interest ("facebook", "instagram", "youtube", or "tiktok"), and collected the first search result that had the platform's domain (e.g., "facebook.com"). Each link was manually verified to ensure that it was indeed the social media account of the relevant politician. In many cases, the link supplied by Google did not actually lead to that politician's social media profile, requiring us to manually search for the account. We also manually identified the social media profiles of all federal and provincial political parties.

In total, we captured the social media profiles of 742 provincial/territorial representatives, 338 federal representatives, and 36 political parties.

7.2.2.2. NEWS MEDIA

We began with manually reviewing [Media Cloud's](#) “national” and “state–local” datasets of Canadian news outlets, which includes the name and URL of each outlet. Many organisations listed in the datasets were not actually Canadian, news outlets, or active, and were therefore removed.

We then automatically opened each news outlet URL and searched the page for a platform domain (e.g., “[instagram.com](#)”). If found, the link was added to the dataset and manually verified. If a link to a social media platform was not found by the web scraper, we manually read through the news outlet’s website (specifically the home page, footer, and contact page) for social media links.

In total, we collected social media profiles for 1,017 news outlets. This dataset includes legacy news organisations, digital-only news websites, and radio stations. Furthermore, to our knowledge, we have the only up-to-date database of active Canadian news outlets in Canada.

7.2.2.3. INFLUENCERS

For our purposes, an “influencer” is any user who frequently posts about Canadian politics, has over 500 followers on any platform, and is not an elected representative, political party, or news organisation. This category is therefore very broad, encompassing civil society organisations, commentators, educators, comedians, and meme-makers.

The method for collecting influencers differed by platform. For Instagram, we began with a small list of a dozen known Canadian influencers, then manually went through the “Suggested Accounts” dropdown on their accounts to find more accounts that fit our criteria. We did this until we began to see accounts that were no longer relevant to Canadian politics. On TikTok, we searched for videos with the hashtag “#canpoli” and added the accounts that fit our criteria for an influencer. We then manually went through these accounts’ “Following” lists (if public) and reposts, and added eligible accounts. Finally, we used [Galeano's et al. 's \(2020\)](#) dataset of Canadian politics-related YouTube accounts to identify active Canadian political commentators. We then manually searched for the other social media platforms of each influencer – e.g., if we found someone on Instagram, we checked if they were also on YouTube or TikTok. We did not do this process for Facebook due to the platform’s prioritisation of content from Friends and Groups/Pages followed by the user.

In total, we collected social media profiles of 373 Canadian influencers. This manual ‘snowballing’ technique of collecting accounts is not comprehensive but captures a large number of important accounts. The influencer list will continue to be updated.

7.2.3. Distribution of seeds by platform and category

Each seed undergoes manual annotation, resulting in its categorization into distinct types and subtypes to refine analysis. The following table shows the overview of the distribution of main seed across various social media platforms.

	Instagram	Tiktok	Youtube	Facebook
News outlet	424 (27.18%)	59 (21.53%)	197 (35.12%)	845 (43.02%)
Politician	882 (56.54%)	64 (23.36%)	291 (51.87%)	1074 (54.68%)
Influencer	254 (16.28%)	151 (55.11%)	73 (13.01%)	45 (2.29%)
Total Seeds	1560	274	561	1964

We also provide subtypes for politicians and influencers to better support future analysis. Following table shows their distribution over seeds.

Main Type	Sub Type	Count	Percentage
Politician	Member of Provincial Legislature	743	29.64%
Politician	Member of Parliament	338	13.48%
Politician	Political party	36	1.44%
News outlet	News	1017	40.57%
Influencer	Others	155	6.18%
Influencer	Organization	86	3.43%
Influencer	Commentator	50	1.99%
Influencer	Activist	44	1.76%
Influencer	Journalist	14	0.56%
Influencer	Candidate	13	0.52%
Influencer	Other type of politician	11	0.44%
		2507	100.00%

7.2.4. Groups and Pages (Facebook)

For the case study on the Meta's decision to block news in Canada, we collected and analysed posts from public pages and groups on Facebook to measure impact on community discourse.

To remove noise and focus only on the communities that could be impacted by the blocking of news, we narrowed our collection to groups and pages that had posted a link to a Canadian news site more than 10 times during the two-month period leading up to Meta's decision. We identified these groups using our seed-list of Canadian news sites and collected group and page account data using the Meta-provided Crowdtangle API. This resulted in 914 groups and 619 pages. We used Crowdtangle to then collect all associated posts uploaded during the period from June 7, 2023 to Oct 1, 2023 (the period around implementation of the news block).

Once we had the account and post data, we then classified each group into one of the following categories: politics, local community, heritage, support group, and leisure interest. Crowdtangle does not provide any metadata for groups other than the name and subscriber count, so we assigned a category to each group account. To do this, we first scraped the “Bio” section of the group’s profile on Facebook. Then we ran a zero-shot classification based on a large language model to assign a category based on the “Bio” text. All accounts that could not be categorised by this method were manually coded into a category, and all the language-model classifications were validated by a human coder. Next, we also extracted the URL and the corresponding domains of every link shared or mentioned in the post data.

7.2.5. Data collection

To map the Canadian media ecosystem, we collected data from the four social media platforms where political discussion is most prevalent: Facebook, YouTube, Instagram, and TikTok. According to recent, nationally representative surveys, Canadians of all ages access news and political commentary through YouTube. Facebook is more popular among middle-aged Canadians, while Instagram and TikTok are popular among younger Canadians. See Section 4 for details on social media usage by age.

7.2.5.1. FACEBOOK

We pursued two collection strategies for obtaining Facebook data, both relying on Meta’s CrowdTangle API. First, we collected all posts published by a seed list of Facebook Pages run by Canadian news outlets, for the period June 1, 2022–September 30, 2022. We collected 4,042,599 posts from 1925 accounts for an average of 8 posts per day per account, with an average reactions per post of 66.3, average shares per post of 8.5 and average comments per post of 14.7.

Secondly, we queried the API for all groups or pages that, prior to Meta’s blocking of news sharing (enacted August 9th, 2023), shared Canadian news URLs sufficiently frequently. For this set of 1618 groups and pages, we then queried the API for all posts published by them for the period June 1, 2022 to September 30, 2023. We collected 2,635,256 posts for an average 13.4 posts per day, with an average reactions per post of 20.1, average shares per post of 2.9, and average comments per post of 5.9.

7.2.5.2. YOUTUBE

To collect YouTube data, we developed a computer program to query YouTube’s API v3⁶⁹ for video content and metadata, along with up to the top 100 comments and commenters per video starting from January 1st, 2023. After removing non-active seeds that have not published any videos in over a year, we ended up with 377 seeds for YouTube. We collected 41,657 videos (73.71% from news outlets,

69 <https://developers.google.com/youtube/v3>

13.26% from influencers, and 13.04% from politicians) and their metadata in our Youtube collection. The average number of views per video is 24,457, with average likes of 742.9, and each account putting out 2.7 videos per week on average.

7.2.5.3. INSTAGRAM

To collect Instagram data, we developed a computer program to visit the profile pages of each seed handle and scroll through their posts in reverse-chronological order from the date of initiation through to the 1st of January, 2023. For each post, we collected the date/time of publication, the handle of the author, the text caption (if applicable), and up to the top 100 comments and commenters. We collected 236,486 posts from 1,258 accounts, with an average view per post of 82.227.

7.2.5.4. TIKTOK

To collect TikTok data, we developed a computer program to visit the profile pages of each seed handle and extract video content (mp4) and metadata (date/time of publication, number of views, number of shares, etc), from the initiation date (mid-September 2023) through January 1st, 2023. We captured 103,483 videos from 270 accounts. The average views per video is 51,428, the average likes per video is 3750, with each account putting out 1.7 videos per week on average.

7.3. A NETWORK DATA STRUCTURE

7.3.1. Network Types

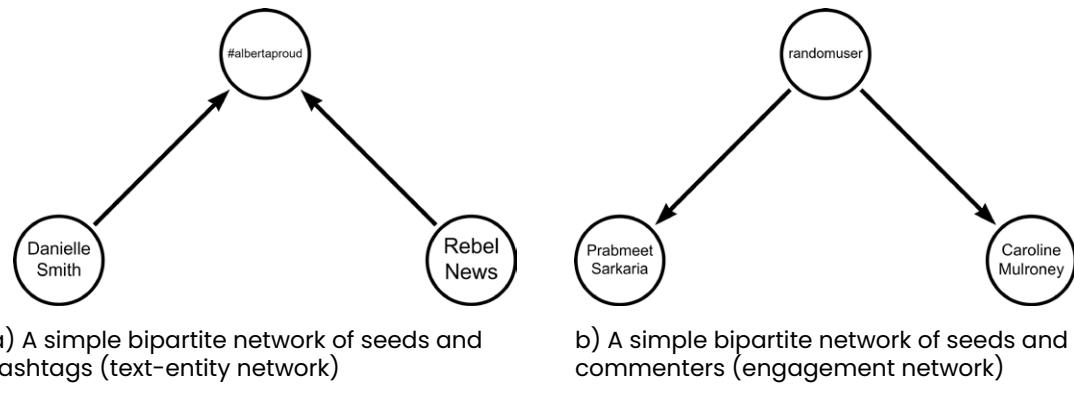
Broadly, we were able to draw two types of networks from our data: text-entity networks and engagement networks. A third type which captures formal intentions (e.g. a follow relationship) can be collected but is not used here.

7.3.1.1. TEXT-ENTITY NETWORK:

A text-entity network is built by connecting nodes (entities like seeds) through shared text entities (like a hashtag). For example, if Alberta's Premier Danielle Smith (@abdaniellesmith) and Rebel News (@news.rebel) both share the hashtag #albertaproud in their Instagram posts, we can draw an indirect relationship between them (see Figure 2.1-a). We consider a text-entity connection to be made when a hashtag is used on the same platform.

To implement this type of network, we extracted text entities from all posts text. Seeds with posts that shared the same text entity were connected to one another to form a bipartite network. As visualised in Figure 7.1-a a bipartite network consists of two categories of nodes (seeds and text entity) that only connect between categories (seeds connect with text entity e.g. hashtags, seeds don't connect directly to seeds). Text-entity networks are necessarily bipartite.

Figure 7.1: Bipartite network examples



7.3.1.2. ENGAGEMENT NETWORKS:

An engagement network is built by indirectly connecting entities (like seeds) through shared engagement (like comments on their posts from the same user). For example, if the same user (@randomuser) comments on both Prabmeet Sarkaria's and Caroline Mulroney's published posts, we can draw a different type of bipartite network (see [Figure 7.1 b](#)).

To conceptualise this type of network, we retrieved comments on all Instagram posts. Our tool allowed us to collect approximately 100 of the top comments per post. Seeds with posts that shared commenter similarities were connected to one another.

Across the data collection described above, we are able to construct a network data structure based on an overlapping set of edges, as summarised in [Table 7.1](#).

Table 7.1: Edge-types for a multi-edge network (multigraph)

Edge type		
Platform	Text entity	Engagement
<i>Instagram</i>	Hashtag	Comment
<i>TikTok</i>	Hashtag	
<i>YouTube</i>	Tag	Comment
<i>Facebook</i>	Domain	

7.3.1.3. Network Projection Assumptions

The edge types described in Table 7.1 are not as obvious as the intention networks (e.g. friend/follow) that social media scholars have typically displayed. The assumption of those networks is that if an individual follows two entities then those two entities have something in common that can be projected into a network graph. Similarly, if an entity uses a hashtag or links to an external domain, we assume that behaviour is a sign of affinity. For example, if someone mentions

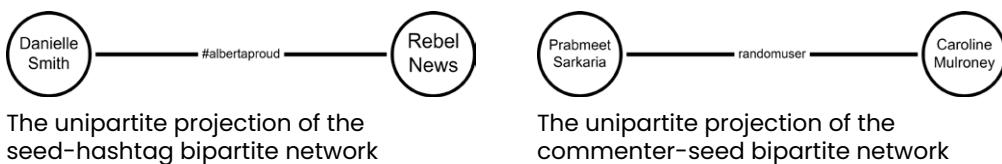
#blacklivesmatter in their social media posts, we infer that they at the very least have an interest in the topic of racism and social justice associated with that hashtag. Note that in both instances, the edge is typically used as a proxy for affinity but in fact may instead capture a shared interest or a mutual or unidirectional animosity. To continue the example, someone could use #blacklivesmatter to post content disparaging the movement. Of course, our inference of someone's political views should be more tentative if they only mention the hashtag rarely. But as they mention it more often, we grow more confident in our assessment.

7.3.1.4. PROJECTING BIPARTITE NETWORKS

Leveraging these assumptions, we infer that if two or more seeds mention a hashtag, they subsequently share a common interest in the topic, and perhaps an ideological affinity. The more often they mention the hashtag, the more comfortable we feel about grouping them together. Similarly, if the posts of two different seeds are commented upon by the same set of people, we infer they share a common readership pool. For reasons owing both to human psychology and algorithmic tendency, people generally do not regularly read a diverse set of media.⁷⁰ If one reads the Toronto Star, it is likely that one also reads CBC than, say, Journal de Montréal. Likewise, if one reads Journal de Montréal, it is more likely that one also reads the National Post than, say, the Tyee. If one comments on a post by Justin Trudeau, one is less likely to comment on a post by Danielle Smith, and comparatively more likely to comment on a post by Chrystia Freeland or Mélanie Joly. Accordingly, whenever two seeds share a pool of commenters in common, they are probably affiliated with each other—geographically, politically, or otherwise. Again, the more frequent the comments, and the larger the pool of commenters, the more confident we grow in this assessment.

What all of this means is that the bipartite networks of the kind displayed in Figures 7.1 can be *projected* into *unipartite* networks, in which the implied and indirect relationship between Danielle Smith and Rebel News, or between Prabmeet Sarkaria and Caroline Mulroney, is rendered direct, as in Figures 7.2.

Figure 7.2



Edge weighting

As above, we connect nodes (seeds) through edges (links). To be able to garner the strength of the relationship between nodes, we use edge weighting. Edge weighting involves assigning numerical values (weights) to the edges of a

70 Cinelli et al., "The Echo Chamber Effect on Social Media"; Kitchens, Johnson, and Gray, "Understanding Echo Chambers and Filter Bubbles".

network. These weights can represent various factors such as distance, cost, capacity, or any other relevant attribute depending on the context of the problem. It is valuable for understanding the flow, efficiency, or impact of various elements in the network.

While inferring a direct relationship from an indirect relationship is intuitive, it is less obvious how edge weighting should be translated. In the case of hashtags, the frequency with which seeds mention the hashtag should intuitively affect the strength with which we associate them in the unipartite projection. If, say, Danielle Smith and Rebel News both mentioned the hashtag only once, their association should be interpreted as *comparatively weak*, and so their shared edge in the unipartite projection should be given less weight than if, say, they both use the hashtag ten times. On the other hand, if Smith uses it just once, while Rebel News uses it 150 times, it suggests that Rebel News is keenly interested in the political position represented by the hashtag, while Smith only lent her endorsement to it in passing, as a once-off. In such a case, the association intuitively ought to remain weak on balance.

To adjudicate on this point we rely on the *harmonic mean* of the weighted edges, which is calculated as $2/(1/w_1+1/w_2)$, where w_1 and w_2 are the edge weights (e.g. number of times a hashtag is mentioned) from the bipartite networks. Like an arithmetic mean, the harmonic mean resolves to a value somewhere between the two input weights w_1 and w_2 , but has the property that it strongly favours the smaller of the two values.

Figures 7.3 and 7.4 depict these calculations for our example of the bipartite seed-hashtag network between Danielle Smith, Rebel News and the #albertaproud hashtag. Figure 7.3 shows that if Smith and Rebel each mentioned the hashtag 10 times (w_1 and w_2), the harmonic mean is 10. Figure 7.4 shows that if Smith mentioned the hashtag once ($w_1 = 1$) and Rebel News mentioned it 150 times ($w_2 = 150$), the arithmetic mean would have yielded 75.5 $((1 + 150)/2)$, whereas the harmonic mean yields merely 1.987. In other words, the edges are strongest when both entities are strongly connected. If one entity is strong but one is weak then the connection between those entities is mathematically minimised.

Figure 7.3a

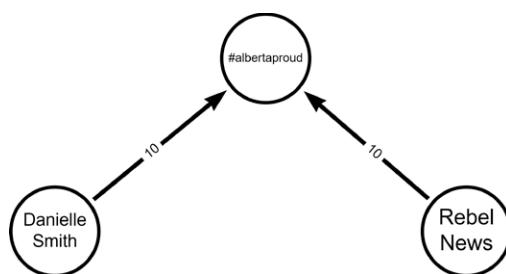
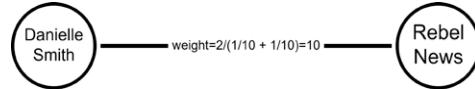


Figure 7.3b



Calculating the harmonic mean of bipartite network edge weights to yield unipartite network edge weights

Figure 7.4a

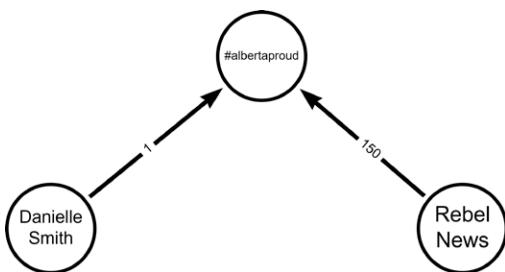
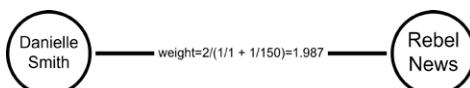


Figure 7.4b



Calculating the harmonic mean of bipartite network edge weights to yield unipartite network edge weights.

7.4. Text classification and topic modelling

While engagement with seed entities allows us to generate network projections, the text content of the social media posts themselves offer another, equally important dimension for analysis. At the most basic level, individual Facebook or Instagram posts as well as YouTube and TikTok video descriptions contain text from which we can discern the theme or topic to which the post pertains. Posts can accordingly be grouped together by topic, allowing us to track the frequency with which topics were raised over time by various seed entities.

The scale of our data collection efforts yielded millions of posts, rendering prohibitive any manual attempt to categorise or classify posts by topic. Instead, we pursued two automated approaches using large language models (LLMs): zero-shot classification and topic modelling.

For the first approach, known as zero-shot classification, we predefined a list of topics that we expected to see in Canadian political discourse circa 2023. In no particular order, these topics were International, Government, Health, Indigenous, Crime, Environment, Misinformation, and Inequality. We then relied on an LLM to predict to which topic each post most likely belonged. We discard any prediction for which the model reported low confidence, and also allowed the model the option to classify a post's topic as Other if none of the predefined topics were pertinent.

For the second approach, known as topic modelling, we allow an LLM to 'discover' topics based on regularly co-appearing vocabulary. Thus, for example, the LLM may discover that words such as "India", "dissident", "diplomatic", and "assassination", appear together across many posts, from which we can deduce that the model discovered the topic of the diplomatic row between Canada and India over the assassination of a Sikh dissident on Canadian soil. We employ both of these models in Section 3.3.

Glossary

Glossary

Bipartite Network: A type of graph consisting of two sets of nodes, where connections only exist between nodes of different sets, not within the same set. For example, one set of nodes could include politicians and another set of nodes could be donors. Donors cannot provide money to other donors and politicians do not receive money from other politicians.

Centrality: A measure in network analysis that determines the importance or influence of a particular node within a network, often based on the number and weight of connections it has to other nodes.

Political influencers: a set of entities (individuals and organisations) who are broadly understood to be politically relevant. Politicians, journalists covering politics, news outlets, and political commentators who have achieved success on social media are the key constituent members.

Diffuseness: The extent to which nodes within a network are spread out or dispersed.

Edge: In network theory, an edge is a connection between two nodes, representing a relationship or interaction between them. For example, two political influencers could frequently use the same hashtag in their posts on Instagram. They have a relationship or edge as a result of their shared hashtag use.

Engagement Network: a form of network found on social media where edges are based on the interactions and communications between users, as measured through likes, shares, comments, and other forms of participatory acts

Information ecosystem: the sum of complex but quantitatively analyzable set of relationships found in and across digital media.

Multigraph: A type of graph in network theory which permits multiple edges , allowing for more than one edge to exist between the same set of nodes. These multiple connections represent different types of relationships or interactions occurring between the entities.

Metadata: Data that provides information about other data, such as the source, time produced, or format.

Network: A set of interconnected nodes (entities) and the edges (relationships) that link them.

Nodes: The individual entities in a network that can be connected to each other through edges; nodes in an information ecosystem are generally used to represent people or organisations.

Text-entity relationship: A network representation where characteristics (which could be keywords, phrases, names, etc.) from text data can serve as the edges between nodes. Typically the edges capture text co-occurrences..

Seed: An entity of interest which serves as a node in a network analysis.

Seed handle: The name of a particular seed on a particular social media platform.

Seed list: A list of the seed handles of all seeds across all platforms studied.

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