

# DIGITAL DEMOCRACY PROJECT

## Research Memo #2 The Climate Change Conundrum

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# DIGITAL DEMOCRACY PROJECT

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The Digital Democracy Project is a joint initiative led by the Ottawa-based Public Policy Forum and the Max Bell School of Public Policy at McGill University.

The project will study the media ecosystem in the run-up to and during Canada's October 2019 federal election by monitoring digital and social media and by conducting both regular national surveys and a study of a metered sample of online consumption. The project will communicate its preliminary research findings publicly on a regular basis from August to October 2019, and will work with journalists to analyze the spread and impact of misinformation. The study will culminate in a final report to be published by March 2020. Both the project's preliminary findings and final report will be publicly available.

The project director is Taylor Owen, Associate Professor and Beaverbrook Chair in Media, Ethics and Communications in the Max Bell School of Public Policy at McGill University. The online data analysis team is led by Derek Ruths, Associate Professor in the School of Computer Science at McGill University, and the survey analysis team is led by Peter Loewen, Professor of Political Science at the University of Toronto.

The project is funded by The Rossy Foundation, the McConnell Foundation, and the Luminare Group and with support from the Mozilla. The project is also participating in the Digital Elections Research Challenge, a collaborative research project led by Taylor Owen and Elizabeth Dubois, Assistant Professor at the University of Ottawa, and funded by a grant from Heritage Canada. The DDP will be sharing survey and online data with the 18 research projects funded through this collaboration and will highlight select findings from these projects in our regular briefings.

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# EXECUTIVE SUMMARY

Over our first two surveys, two clear electoral issues are emerging: climate change (for Liberals and the left-leaning parties) and ethics (for the Conservatives). But if the Conservatives are having trouble finding an audience for ethics concerns, even among their core supporters, the Liberals appear to have an even more difficult conundrum: The very people who actually believe in their main issue don't appear to have much interest in doing anything about it.

## KEY FINDINGS

### Issues and Policies

- 1** The environment remains a top-three political issue for most Canadians, along with the economy and healthcare, with ethics ranking further down the list for supporters of all three major parties.
- 2** Climate change is the most important component of the environmental discussion for politicians, journalists and members of the public alike.
- 3** Public support for reducing greenhouse gas emissions is high, but support for an increase in the carbon tax is low. In general, public opposition to a carbon tax rises as the proposed cost of the tax increases.

### Survey Results

This is the second report from the Digital Democracy Project, a partnership between the Public Policy Forum and the Max Bell School of Public Policy at McGill University. The project uses data from both public opinion polling and online media analysis to examine the media habits of the broader Canadian public as well as the political and journalistic class, with an eye to understanding the various relationships between media use, partisanship, political knowledge, and concern over policy issues.

As with our first report, the environment was a top-ranked issue for Canadians, with climate change dominating the discussion. Seventeen percent of our survey respondents said the environment was the most important political issue to them, second to the economy (20%) and tied with healthcare (17%). Only 5% rated ethics as their most important issue. When asked to choose three important environmental policy issues, climate change

### Media and Information

- 1** Media coverage about the environment is also more likely to involve climate change than other environmental issues such as single-use plastics or conservation. But while news organizations might be covering the environment, and journalists we monitored on Twitter frequently shared that coverage, there was far more disproportionate sharing of ethics-related stories, especially around the SNC-Lavalin story.
- 2** It is possible to make Canadians better informed about the *facts* that underpin policy issues, regardless of their political leanings. However, even if they are provided with correct information, it is unlikely to influence their *beliefs* about the policies needed to address those facts

came out on top (61%), followed by pollution at 49%. Journalists and candidates were far more likely to share media content involving climate change than other environmental issues, and a scan of online news sources shows that far more stories about the environment made reference to climate change compared to other environmental topics.

While a large majority of Canadians accept the scientific consensus on climate change, a quarter (27%) express skepticism that the Earth is getting warmer or that human activities are behind rising temperatures. This number is substantially higher among Conservative partisans (45%) compared with Liberal (22%) and NDP supporters (16%). The journalists in our sample were less than half as likely to tweet links to stories about the environment than stories about ethics. This probably reflects less a lack of interest in the environment than it does underscore an endemic feature of political journalism—namely, an overriding professional interest in scoops and scandals.

## Experimental results

1. While public support for emissions reduction is high, there is little consensus on what policies should be used to get us there. There is some support for renewable energy subsidies, but—somewhat surprisingly given the ostensible concern over climate change—widespread opposition to increasing carbon taxes, with only 36% of Canadians in favour.

We also found that Canadians are more likely to oppose a carbon tax as the tax rate increases. In the first of two experiments we conducted as part of our survey, we assigned respondents to one of three randomly assigned groups. Some were asked about a proposed carbon tax of 5 cents per litre of gasoline, while others were told it would be 10 or 15 cents. Forty-two percent of respondents are estimated to oppose a carbon tax at 5 cents per litre, but that rose to 51% at 15 cents per litre. A carbon tax gets majority opposition at around 13 cents per litre.

Conservative supporters were the most sensitive to proposed carbon tax increases: 60% oppose a 5-cent carbon tax, which increases to 75% at 15 cents per litre. However, supporters of left-leaning parties (i.e. Liberals, NDP, Greens, Bloc) were not responsive to changes in the proposed tax price. One can only speculate as to what motivates this clear partisan difference.

2. Our second survey experiment took a deeper look at a finding from our first report. There, we found that Canadians who read or watched more news media were more likely to give an incorrect response to policy questions, and strongly partisan respondents were particularly susceptible to giving more wrong answers as their media consumption increased. This suggests that highly motivated partisans may reject information that is inconvenient to them.

For this report, we wanted to see if providing survey respondents with correct information would affect their answers to questions about their policy knowledge or opinions. We informed half of our survey respondents that Canada was not on track to meet its Paris Accord targets. Members of this group

were more likely to correctly answer a related question, regardless of their political leanings, than the other half who did not receive the fact.

However, we saw no evidence that having correct information about climate change would affect support for some types of mitigation policy. For example, support for the carbon tax was virtually identical for respondents who received the correction about the Paris Accord (35%) and those who did not (36%). What this suggests, at the very least, is that correct information about facts and related policies plays a limited role in determining one's support or opposition to those policies.

## **Methodology**

This Digital Democracy Project report draws from three primary data sources. First, our survey data team conducted an online panel survey of 1,554 Canadian citizens 18 years and older using Dynata. The sample was gathered from Aug. 17-23. Data was weighted within each region of Canada by gender and age to ensure it adequately represented the Canadian public. Survey respondents were asked questions related to basic demographics, as well as their partisan, ideological and issue preferences.

Second, we continued to collect Twitter data using the Twitter Search and Streaming APIs, leading to a cumulative sample of approximately 2.8 million tweets from June 1 to Aug. 23 from accounts belonging to five categories of Twitter users: 1) major party candidates; 2) political journalists; 3) politically relevant third parties; 4) members of the public who included Canadian political hashtags in their tweets; and 5) official Twitter accounts of news organizations that cover Canadian politics. This report uses data from the first and second groups. We will continue to expand the number of accounts we are following by looking at accounts that engage with our existing list.

In addition to this social media data, 38,735 English- and French-language stories were gathered using the RSS feeds of top news sites.

There is a variety of additional data collected as part of this project but excluded from this report that will be revisited once the data have been vetted and properly analyzed. Future reports will also expand the scope and scale of Twitter search activities and extend beyond RSS-available digital news sources to include additional digital data sources. The limitations of examining Twitter as a source for public opinion are well known: although it has become an important tool for journalists, politicians and policy-makers, it is less popular among the general public. According to the Canadian Internet Registration Authority's Internet Factbook for 2019, 23% of Canadians use Twitter, compared to 71% for Facebook and about 36% for Instagram. However, using public opinion polling in addition to Twitter analysis allows us to see how the conversation among Twitter users—including politicians and opinion leaders—aligns or diverges from the viewpoints of the more general public.

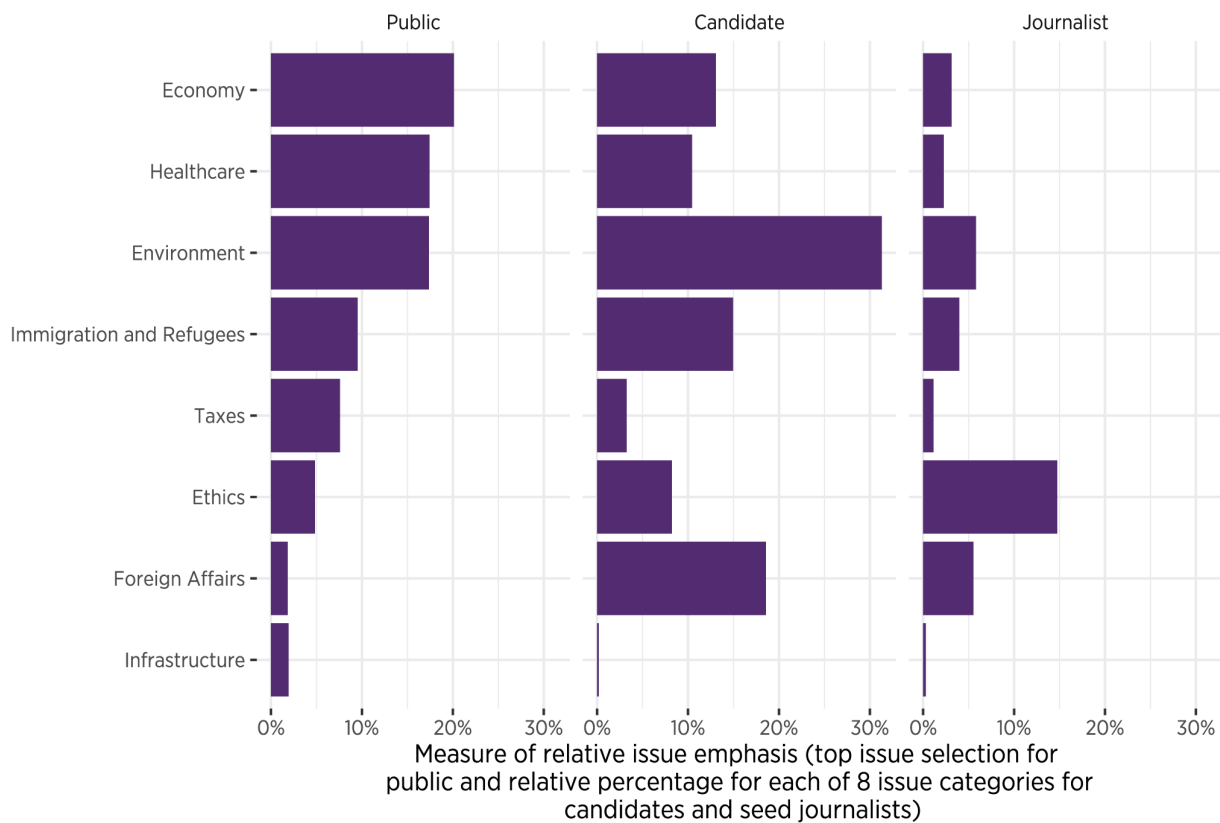
For additional details on the methodology, see Appendix.

# GENERAL FINDINGS: ISSUES

As in our previous report, we monitored the most important election issues as understood by the general Canadian public, by journalists, and by candidates running in the election. Our measure of relative issue emphasis is obtained in two different ways. For the general public, survey respondents were asked to select their most important issue in the upcoming election. For candidates and journalists, we analyzed the top news stories shared on Twitter by all declared candidates running in the federal election and by the journalists on our list, labelling them with at least one of eight different topic categories.

For our survey respondents, the economy is considered the most important issue, but only by a modest plurality of Canadians (20%). It is followed closely by health care (17%) and the environment (17%). Interestingly, despite the release of the Conflict of Interest and Ethics Commissioner’s report on the SNC-Lavalin scandal just two days prior to the start of the sampling period, ethics remains a bottom-tier issue of concern for surveyed Canadians—only 5% rated ethics as the most important issue. Comparatively, candidates (especially Conservative Party candidates; see Figure 3) and journalists heavily emphasized ethics-related issues on Twitter. Meanwhile, both candidates and journalists underemphasized (relative to the general public) issues related to healthcare, taxes and the economy.

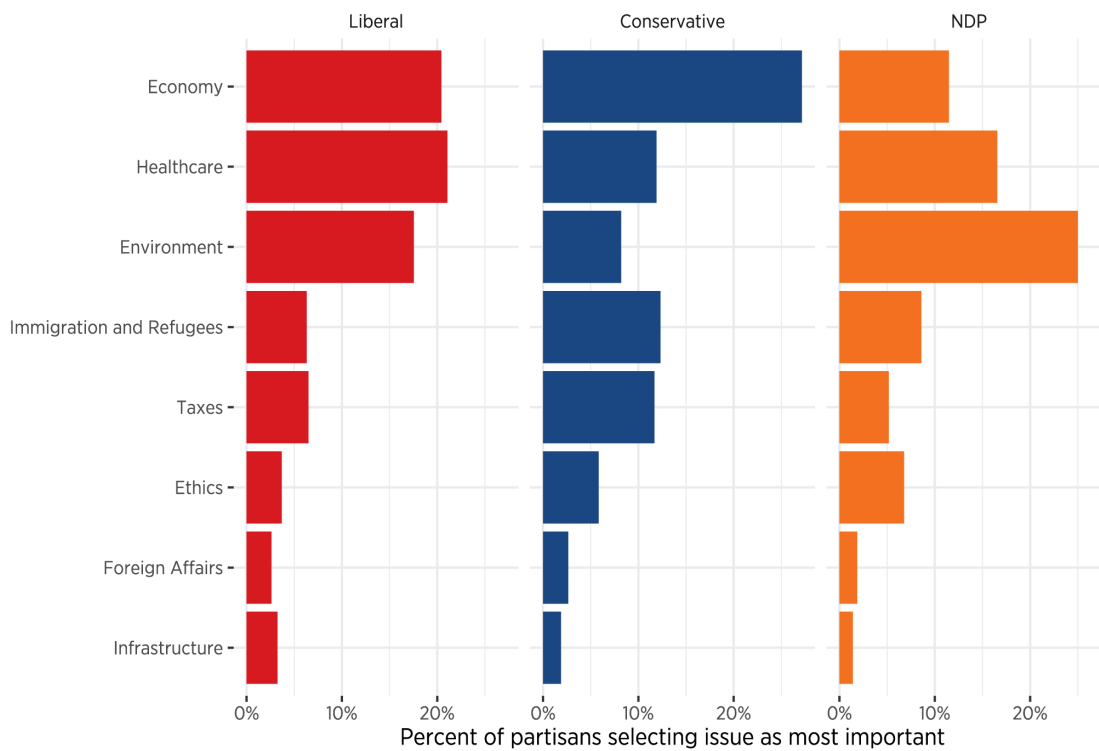
**FIGURE 1**



Similar to the results from our last report, there are substantial differences in the most important issues to supporters of the different major parties, as seen in Figure 2. Conservatives are substantially more likely to privilege the economy (27%) than NDP supporters (11%). Conservatives are also much less likely to see the environment as the most important issue (8%), compared to Liberal (20%) and NDP partisans (25%).

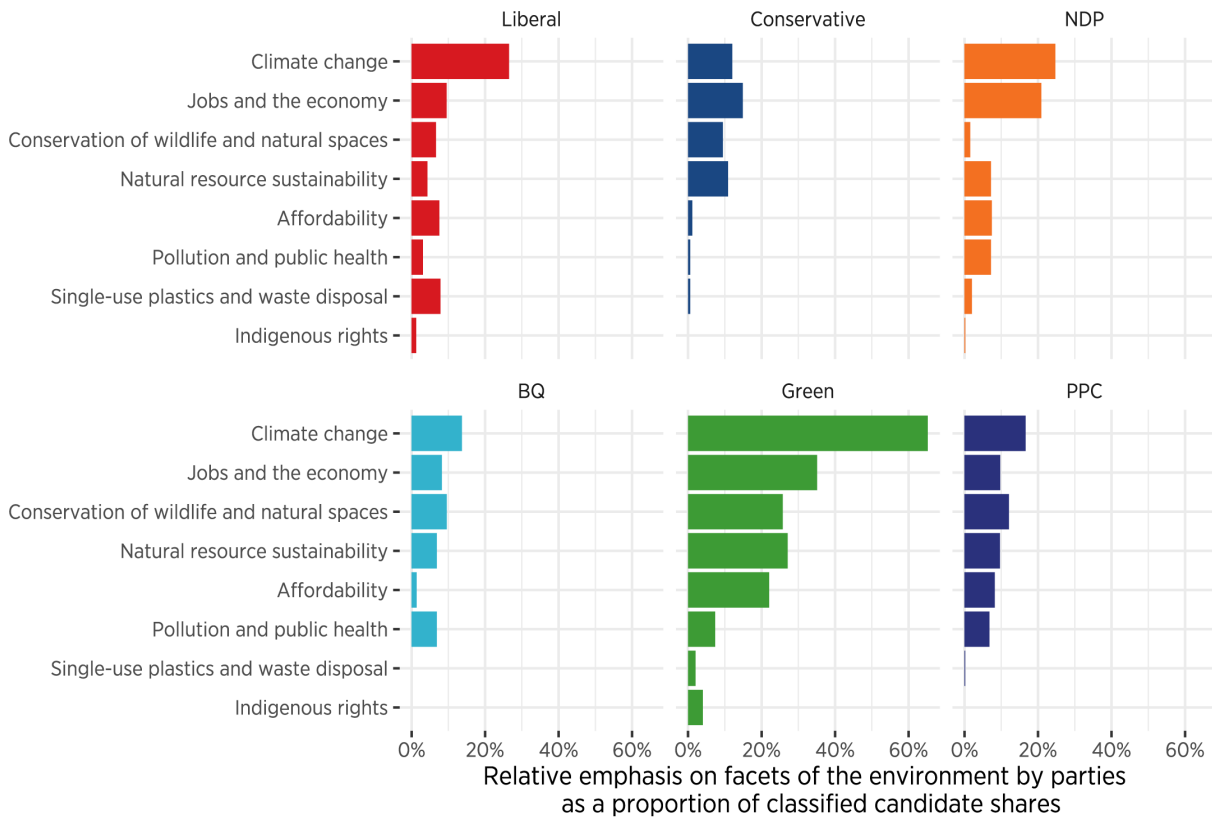
These priorities are reflected in those of the candidates, with Liberal and NDP candidates heavily focusing on the environment online (see Figure 3). Conservative candidates, meanwhile, tweet about ethics at a rate that far outstrips their supporters' interest in the issue.

**FIGURE 2**





**FIGURE 3**



## FINDINGS: ENVIRONMENTAL POLICY

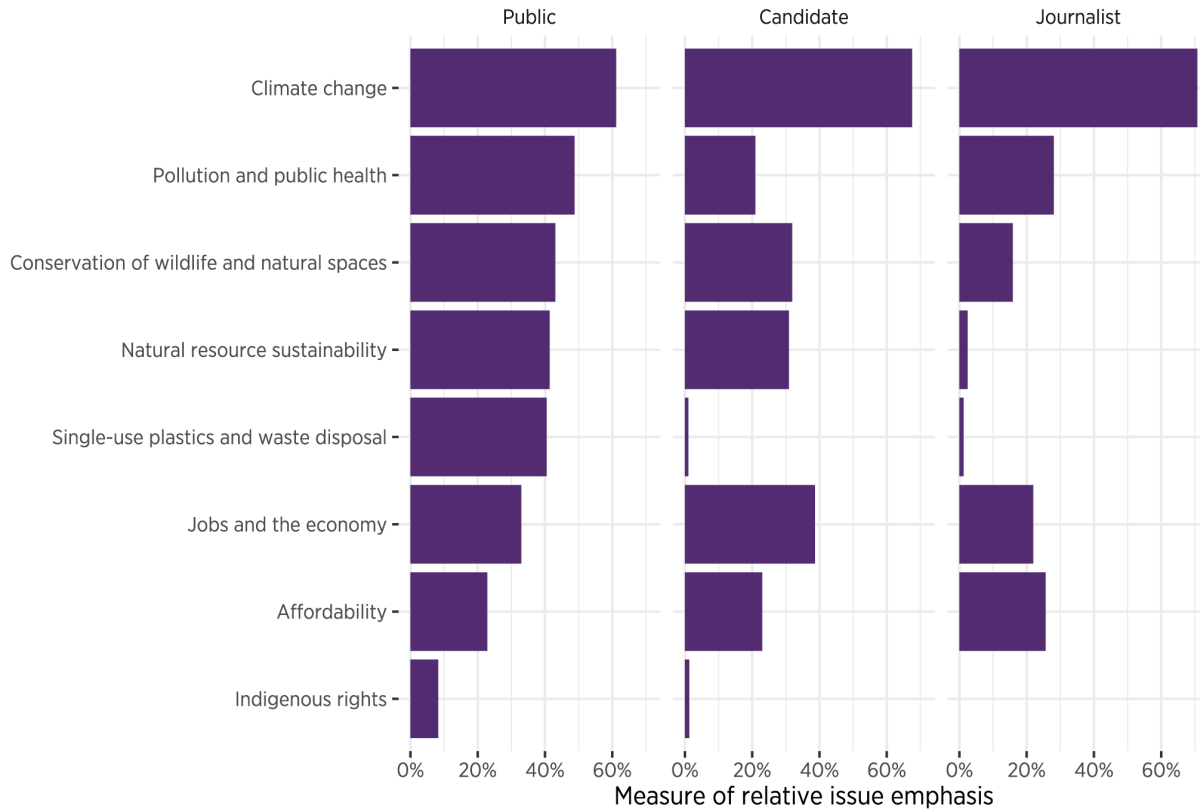
The environment, like many political issues, is extremely complex and can mean different things to different people. To provide a bit more nuance into the specific facets of environmental policy that are emerging as electoral issues for Canadians, we surveyed our respondents on what they think of when they consider the environment as a political issue.

We provided our respondents with a list of eight different, but related, dimensions of environmental policy: climate change, indigenous rights, single-use plastics and waste disposal, natural resource sustainability, conservation of wildlife and public spaces, pollution and public health, jobs and the economy, and affordability. They were asked to select three top environmental issues. We also sought to understand what specific aspects of the environment were being stressed by candidates and journalists online. We coded the most-shared 165 pieces of media content about the environment to determine which of those eight issues were included. The results are shown in Figure 4.

The survey results show that climate change was the most common issue our respondents selected in their top three (61%), followed by pollution (49%) and conservation (43%). Jobs (33%) and affordability (23%) were

comparatively less important for our respondents. Indigenous rights were the least considered dimension of the environment (8%).

**FIGURE 4**

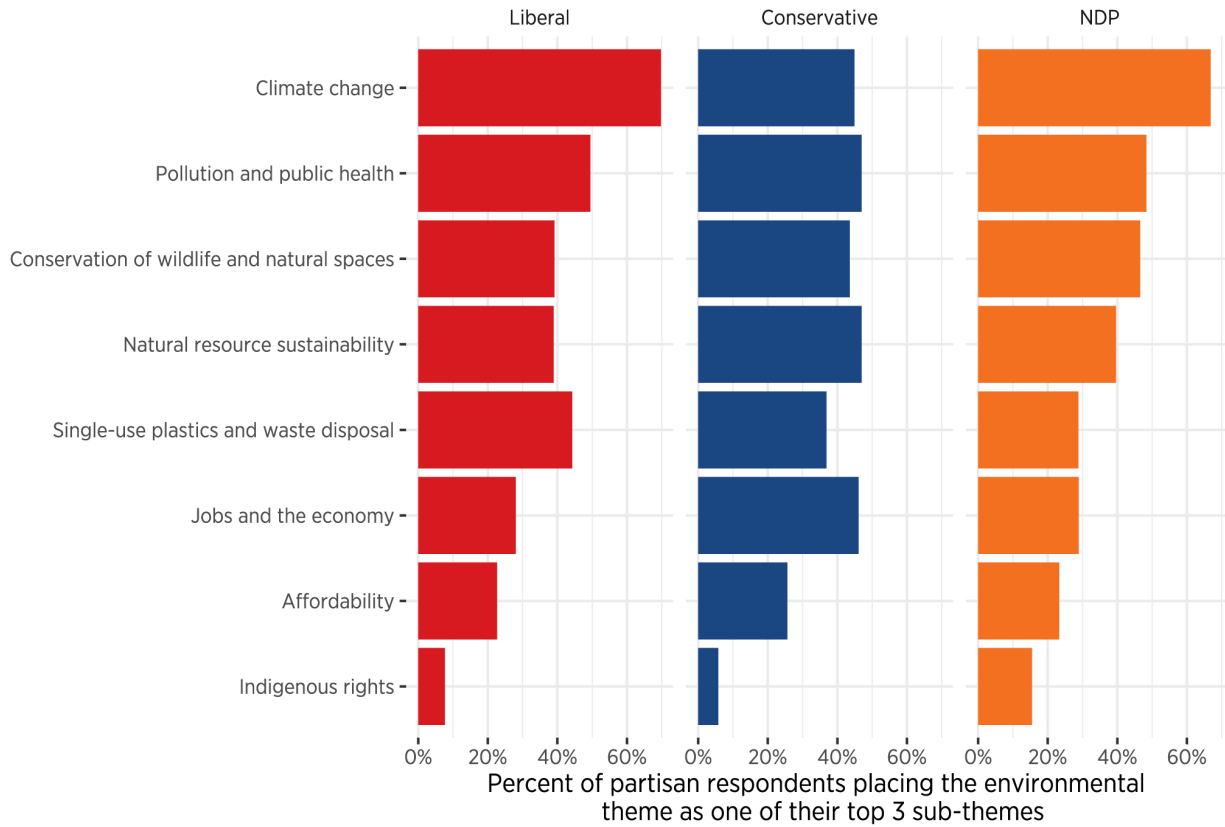


We can see from Figure 4 above that the online discussion of environmental issues by candidates and journalists maps fairly well onto the public’s environmental policy priorities; however, candidates and journalists tend to under-share stories about single-use plastics and waste disposal, natural resource sustainability and conservation relative to the public’s interest in these issues. And while Indigenous rights are a top-three issue to at least some respondents, none of the most-shared environmental stories from journalists focused on Indigenous rights.

There are some partisan differences in respondents’ perceptions of the environment as a political issue, as seen in Figure 5. Liberal and NDP partisans responded in a similar manner: climate change was the top issue area for both (70% and 67%), followed by pollution (49% and 48%). Liberal partisans saw waste and single-use plastics as comparatively more important than NDP partisans (44% vs. 29%), while NDP partisans privilege conservation at higher levels compared to Liberals (47% vs. 39%). Conservative partisans see the environment quite differently. For these respondents, pollution (47%), sustainability (47%) and jobs (46%) are the top three issue areas, while climate change is ranked fourth. This suggests that partisans of left- and right-leaning parties may

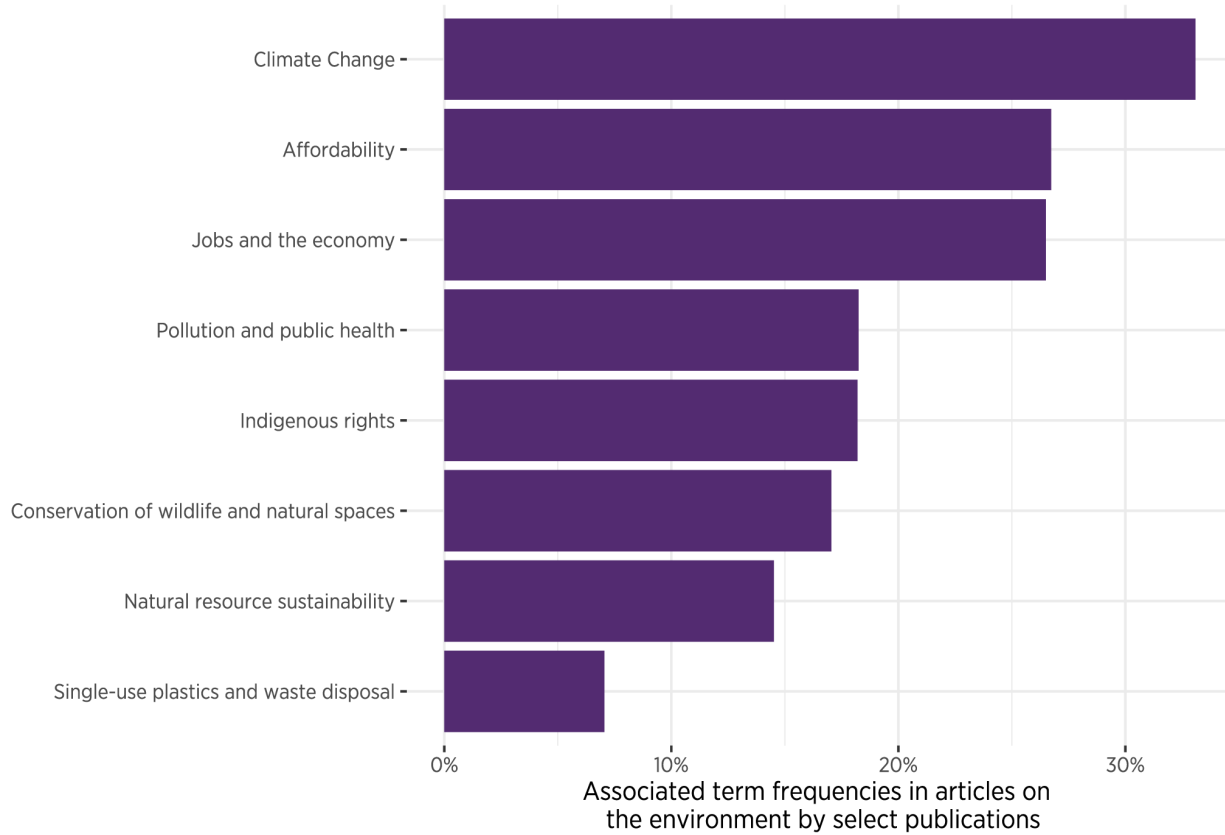
be talking past each other on the environment to some degree, stressing different aspects of environmental policy as political and electoral issues.

**FIGURE 5**



A final view on these eight subject areas is drawn from news stories taken from major Canadian news organizations' RSS feeds from June 1 to Aug. 22. Across these stories, themes related to climate change, affordability, and jobs and the economy were most common. Unlike the issue emphases of the mass public, candidates or individual journalists on Twitter, news media are producing environmental stories that generally cover all eight identified facets of the environment, although there is only limited coverage of waste-related themes. See the Appendix for additional methodological details.

**FIGURE 6**



## PUBLIC SUPPORT FOR CLIMATE SCIENCE AND MITIGATION

That partisans of left- and right-leaning parties see the environment differently as an issue indicates that they might also have systematically different views on climate science and climate change mitigation policies. We asked our respondents the following question:

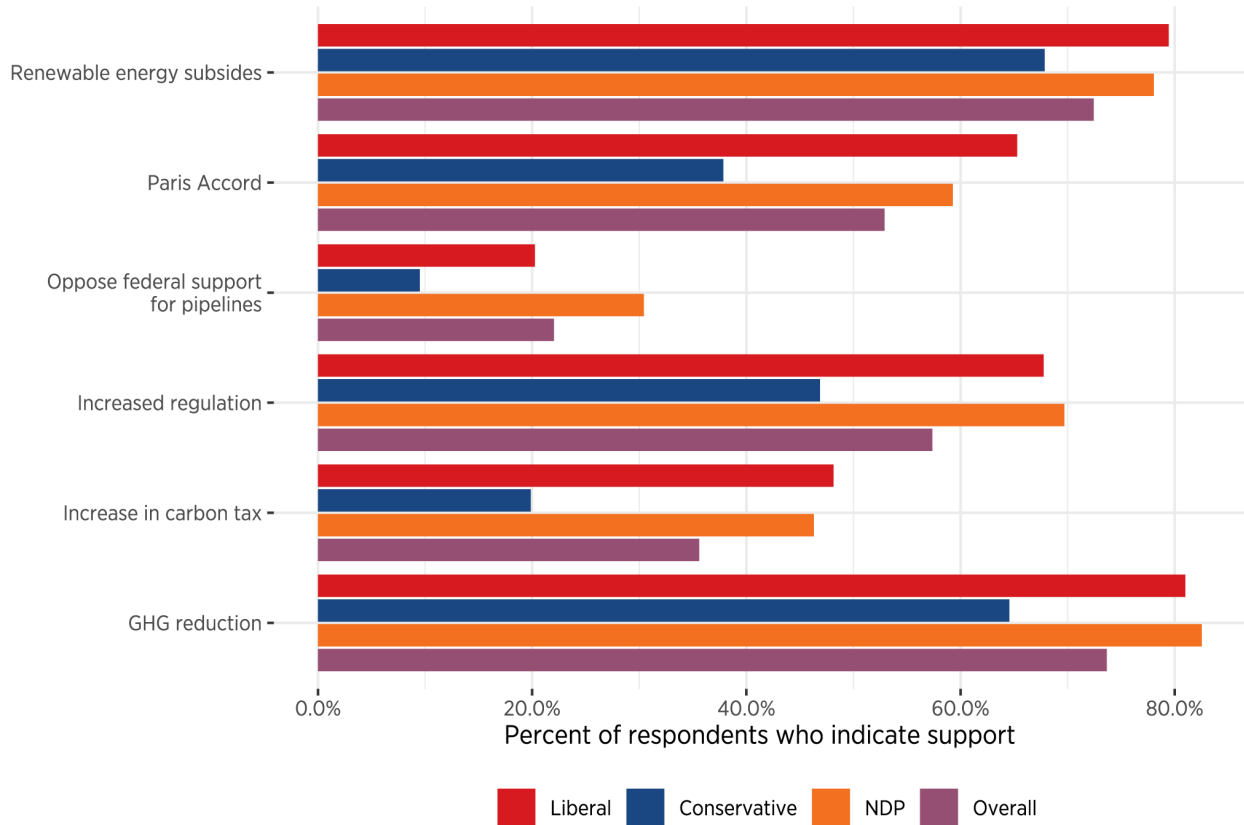
“If you had to choose, which one of these statements about the Earth’s temperature comes closest to your view: The Earth is getting warmer mostly because of human activity such as burning fossil fuels; The Earth is getting warmer mostly because of natural patterns in the Earth’s environment; There is no solid evidence that the Earth is getting warmer.”

Respondents who chose the latter two options were classified as *climate skeptics*. Approximately 27% of Canadians can be classified as climate skeptics by this metric. This number is substantially higher among Conservative partisans (45%) compared to Liberal (22%) and NDP supporters (16%). A large majority of Canadians accept the scientific consensus on climate change, but there appear to be partisan and ideological differences that mirror public opinion dynamics in the United States.

There are also sharp differences between left- and right-leaning partisans on questions related to climate mitigation policy. We asked our respondents to indicate their level of support (strongly oppose to strongly support, 5-point scale) for reductions in greenhouse gas emissions; subsidies for renewable energy; increased regulation; support for pipeline construction; support for the Paris Accord; and an increase in the carbon tax.

Overall, Canadians expressed strong support for further emissions reductions (74%) and renewable energy subsidies (72%). This support is common to partisans of the three major parties: 64% of Conservative partisans support emissions reductions, while 68% favour subsidies for renewable energy.

**FIGURE 7**



Public support drops off sharply from there. Fifty-seven percent of Canadians support increased regulation of industry. This policy is robustly supported by Liberal (68%) and NDP partisans (70%), but not as strongly by Conservatives (47%). An increase in the carbon tax is a non-starter, supported by only 36% of Canadians. Both Liberal and NDP partisans are almost evenly split on this question (48% support for Liberal partisans and 46% for NDP), while Conservatives are overwhelmingly opposed, with only 20% supporting this proposition. There is very little opposition to pipeline construction. Only 22% of our respondents signalled opposition to government support for pipeline construction, including only 20% of Liberals and 30% of NDP supporters.

On the surface, Canadians are in agreement that greenhouse gas emissions should be reduced. However, consensus does not extend much beyond that basic point.

## EXPERIMENT: EVALUATING RESPONSIVENESS TO CARBON TAXES

Carbon taxes are one of the central policy tools used to reduce greenhouse gas emissions. However, mobilizing public support for this policy has been a challenge. One particular concern is that support may dry up when Canadians are asked to pay more for their energy consumption, especially when such costs are visible. We see some evidence of this in our respondents' answers to our battery of mitigation policy questions. Support for emissions reduction is high, but support for an increase in the carbon tax is far lower. Support for regulation and renewable fuel subsidies is higher, although these entail costs to taxpayers and consumers that are comparatively more hidden.

We can directly evaluate Canadians' willingness to pay a visible cost to fight climate change by using an experiment. We provided all our respondents the following brief description of the purpose of a carbon tax:

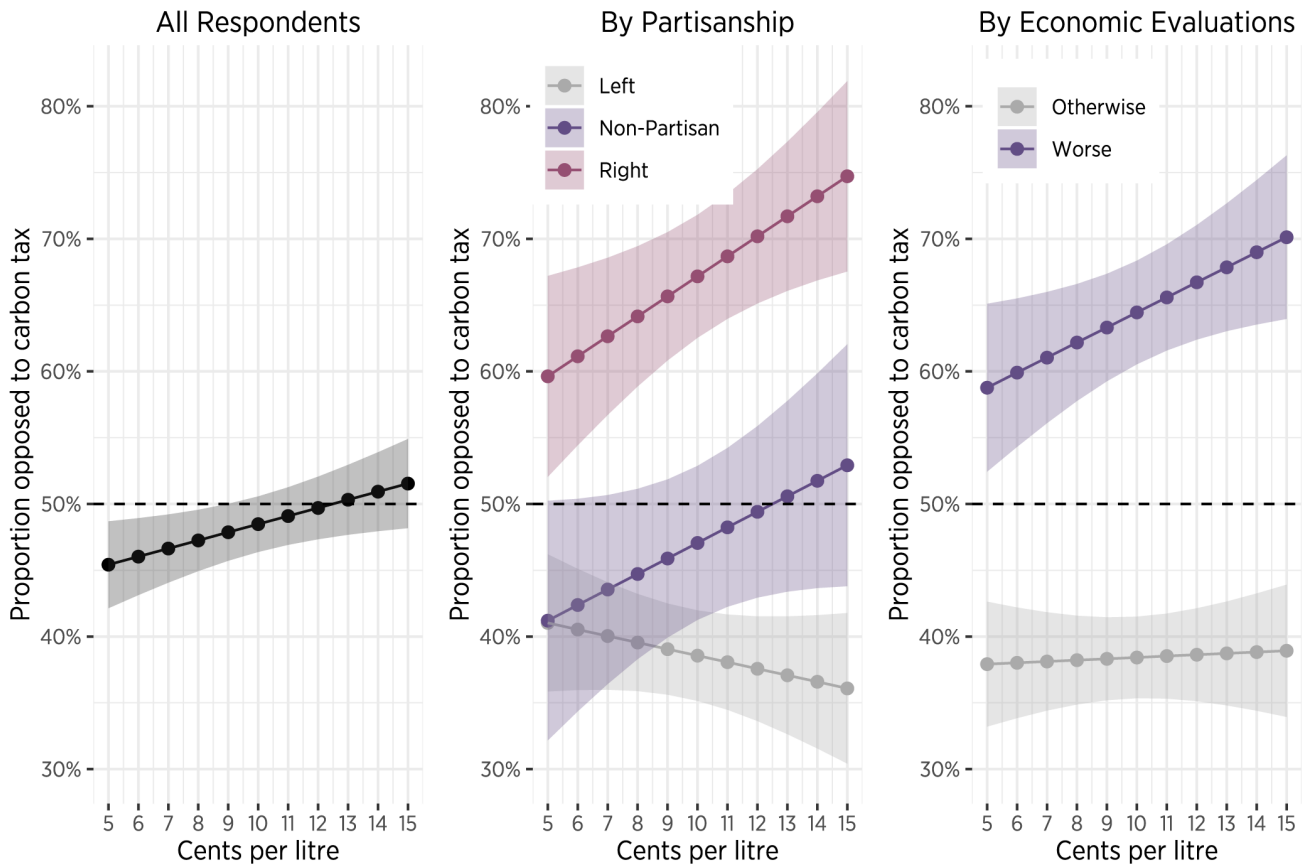
"Some policy experts have proposed carbon taxes as an effective response to climate change. A carbon tax is a surcharge on products (e.g., gasoline) and services (e.g., air travel) that use fossil fuels. Carbon taxes work by making fossil fuel consumption more costly, and in doing so, encourage a switch to cleaner energy alternatives (e.g., hydro, wind and solar). Unlike other taxes, carbon taxes are not typically used to generate revenue. Governments can make a carbon tax revenue-neutral by using the collected revenue to reduce other taxes (e.g., income taxes). This is how the British Columbia carbon tax is designed. The BC carbon tax has been lauded by economists and scientists for its revenue neutrality and for its effectiveness in reducing emissions."

We randomly assign respondents into three conditions to receive the following statement:

"The most visible effect of a carbon tax will likely be on the cost of gasoline. A carbon tax could increase the price of gasoline by [5/10/15] cents/litre, making things like private and public transportation more costly."

Some respondents were told the cost would be 5 cents per litre, while others were told it would be 10 or 15 cents, depending on the group. Our results provide a linear estimate of the share of respondents who would oppose the carbon tax from 5 to 15 cents per litre, displayed in the left panel of Figure 8. At 5 cents, 42% of respondents are estimated to oppose a carbon tax, but this rises to 51% at 15 cents per litre. A carbon tax gets majority opposition at around 13 cents per litre. This finding illustrates the political perils of using carbon taxes to secure emissions reductions needed to meet Canada's international obligations.

**FIGURE 8**



Canadians are responsive to the visible costs of climate mitigation policy, but their degree of responsiveness may vary depending on their political leanings. Conservative supporters are clearly responsive to the price increase: 60% of Conservatives oppose a 5 cent carbon tax, which increases to 75% at 15 cents per litre. However, partisans of left-leaning parties (i.e. Liberals, NDP, Greens, Bloc) are unresponsive to the price increase. There is no evidence of a statistically significant increase or decrease in opposition to a carbon tax among these respondents. This lack of responsiveness to the price could possibly be because these respondents are more willing to accept sacrifices needed to reduce emissions. These results are shown in the centre panel of Figure 8. Non-partisans appear to behave more like right-leaning partisans. At 5 cents they share a similar level of opposition to the carbon tax as left-leaning partisans (41% each). However, they move toward majority opposition at 15 cents (53%), unlike partisans of the left-leaning parties (30%).

Canadians might also be less inclined to make sacrifices when economic conditions are poor. We cannot directly investigate this research question with a survey of individuals. However, we might expect Canadians who view the economy as doing poorly to be more responsive to the cost of climate mitigation than others. We asked our respondents to evaluate whether the Canadian economy has gotten better, worse or stayed about the same over the past year. Respondents who perceive the economy as doing worse (about 39% of the

sample) were particularly responsive to price. These results are shown in the right panel of Figure 8. Fifty-nine percent of these respondents opposed the carbon tax at 5 cents, compared to 70% at 15 cents. All other respondents were unresponsive to the price on average.

**In short, Canadians' support for climate mitigation policy is limited by high visible costs of such policies when they exist. However, this relationship depends on partisanship and perceptions of economic performance.**

## EXPERIMENT: CORRECTING ENVIRONMENTAL POLICY MISPERCEPTIONS

In our previous report, we asked our survey respondents a series of fact-based questions relevant to important topics in Canadian public policy. We found that Canadians are more *uninformed* than they are *misinformed* about important facts related to public policy, meaning they are more likely to be “unsure” about the answer to questions about public policy rather than to answer incorrectly. We showed that the tendency of Canadians to be misinformed about policy is related to their high exposure to news consumption, especially via social media. We also found that this pattern was particularly pronounced among respondents who strongly identified with a political party.

We argued that highly motivated partisans integrate information that best serves their interests and identities with their beliefs about the world. Political journalism often provides information that can contribute to this kind of motivated reasoning by focusing on the cut and thrust of political debate. This raises the question of whether it is even possible to correct misperceptions with correct information. Researchers are increasingly finding that fact checks are effective at informing citizens, even when a fact is inconvenient for a partisan group.<sup>1 2</sup> However, it is always possible that highly motivated partisans may simply reject information that is inconvenient to them.

We asked respondents one of our fact-based, environmental questions from our previous report—“Is Canada on track to meet its climate change commitments under the Paris Accord?”—to which they could answer yes, no or unsure. Before asking this question we randomly assigned respondents into two groups. One group received a correction from a real news story that reads as follows:

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<sup>1</sup> Nyhan, B., Porter, E., Reifler, J., and Wood, T. J. 2019. Taking fact-checks literally but not seriously? The effects of journalistic fact-checking on factual beliefs and candidate favorability. *Political Behavior*. <https://doi.org/10.1007/s11109-019-09528-x>

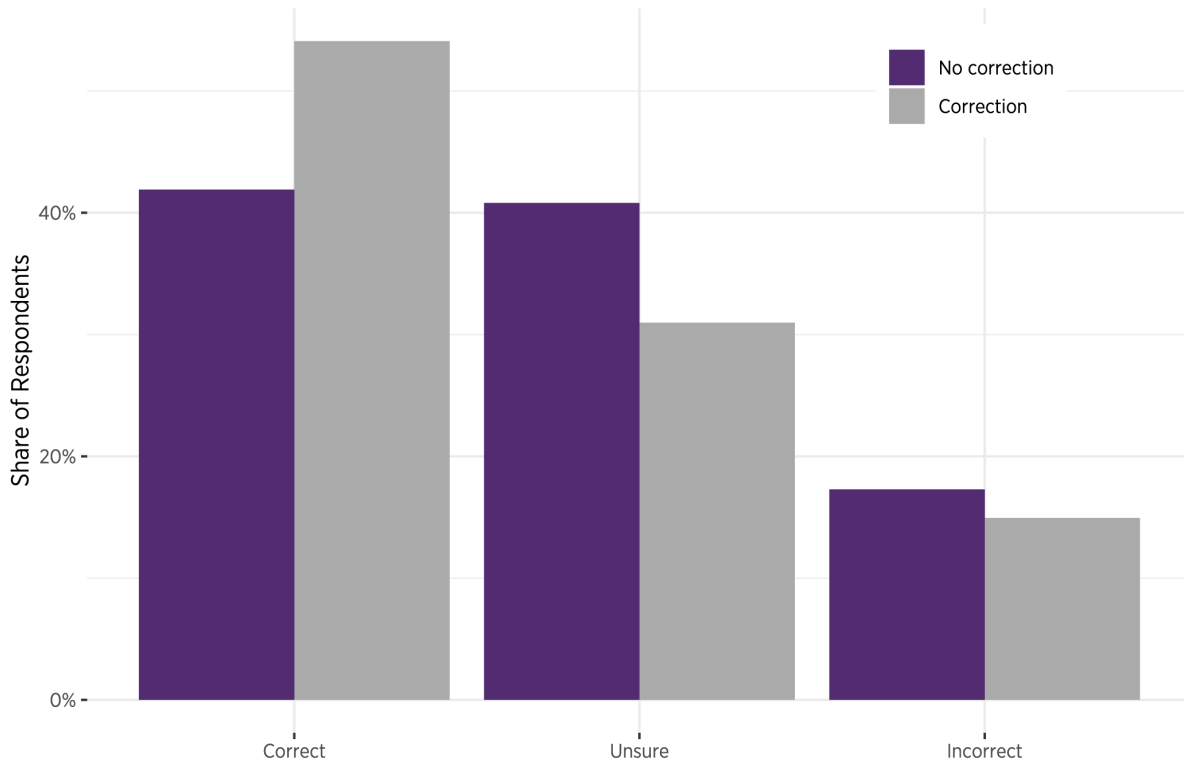
<sup>2</sup> Porter, E., & Wood, T. J. 2019. The elusive backfire effect: Mass attitudes' steadfast factual adherence. *Political Behavior*, 41(1), 135-163. <https://doi.org/10.1007/s11109-018-9443-y>



“Canada is further away from meeting its emissions reduction targets under the Paris agreement than it was a year ago, according to new government projections, though Environment Minister Catherine McKenna insists Canada will achieve its climate change goals.

New numbers released by Environment Canada on Thursday show that Canada is on track to fall 79 megatonnes short of its 2030 greenhouse gas emissions targets. That’s up from 66 megatonnes last year.”

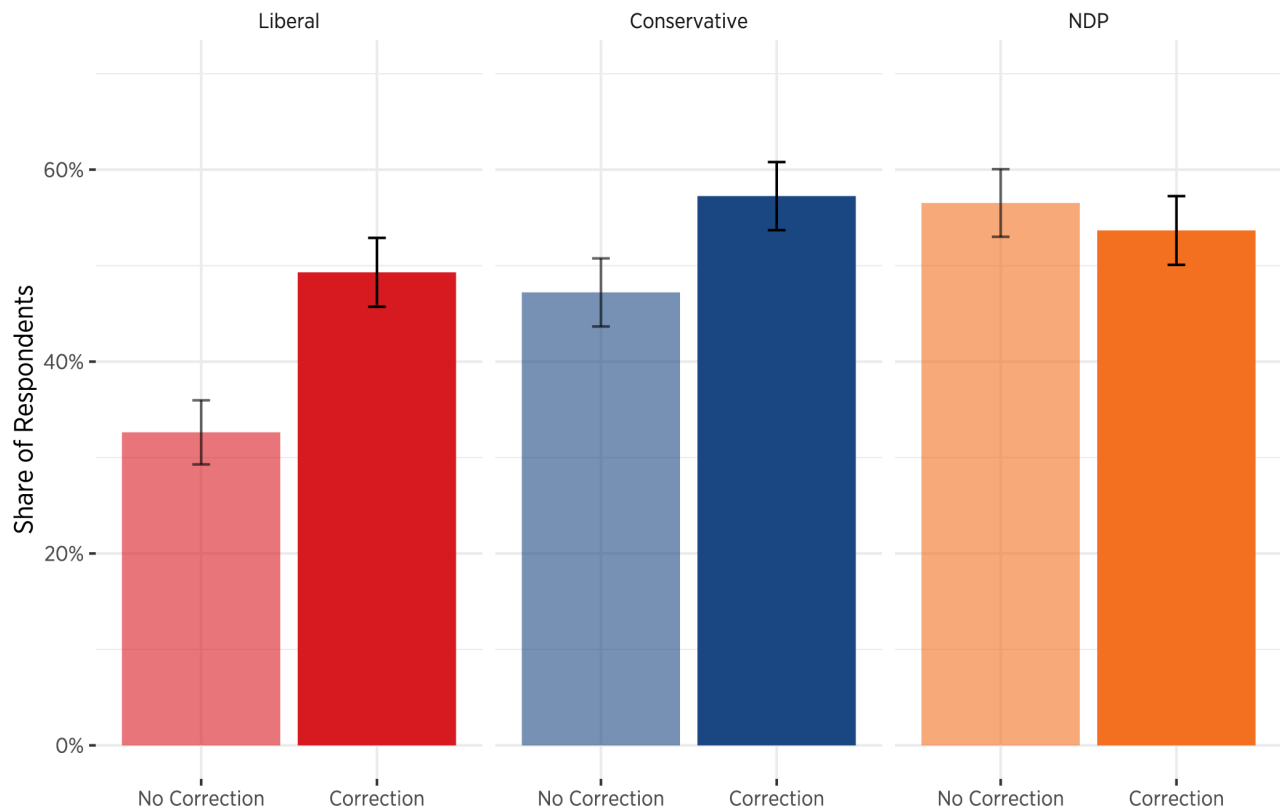
**FIGURE 9**



The other group received no such correction. The results, shown in Figure 9, suggest corrections are helpful at making Canadians better informed: only 42% of respondents got the question right without the correction, but this increased to 54% among those who received the correction. However, this increase came primarily from uninformed rather than misinformed respondents. The number of people who said they were unsure of the answer was 10 points lower for those who received the correction compared to those who did not, while the number of those who were misinformed was just 2 points lower among those who received the correction.

**This means the correction was effective at making our respondents more *informed*, but did not make them much less *misinformed*. It persuaded respondents who were unsure of whether or not Canada would meet its Paris Accord commitments, but was less effective at influencing those who incorrectly believed Canada is on track.**

**FIGURE 10**



There is also some evidence that this correction was effective *regardless of partisanship*. The results broken down by partisans of the major parties are shown in Figure 10. Liberal partisans were the least likely to be correctly informed without the assigned correction. Only 33% of Liberals got the answer right, compared to 47% of Conservatives and 57% of NDP partisans. This may not be surprising because the fact could reflect poorly on the incumbent Liberal government. However, when given a correction, 49% of Liberal partisans got the answer right – a 16-point increase. The correction also increased the share of Conservatives who got the answer right by 10 points. The end result is that partisans converged in their beliefs about whether Canada is on track to meet its Paris Accord commitments.

**In sum, it is possible to correct beliefs on important policy-relevant facts, even when such facts are inconvenient for audiences with partisan leanings.**

We were able to correct many of our respondents' beliefs about an objective, verifiable fact: whether Canada is on track to meet its Paris Accord commitments. More substantively, however, we would like to see if this correction has an influence on other, higher-order beliefs.

The fact that Canada will fail to meet its Paris Accord commitments is deeply troubling considering the Accord is one step in a long road to head off the catastrophic effects of climate change, which will require zero carbon

emissions by mid-century. Being informed of this fact should ideally have an influence on the policies citizens are willing to endorse to combat climate change. We might expect knowledge of this fact to increase support for stronger climate mitigation policy.

In fact, we find no evidence that this is the case, on average. For example, support for the carbon tax was virtually identical for respondents who received the correction (35%) and those that did not (36%).

**The upshot is that we have the capacity to make average Canadians better informed about policy-relevant facts. However, in this case we found no evidence that this has meaningful effects in public opinions about policy more broadly. We were able to inform our respondents that Canada is not reducing greenhouse gas emissions fast enough to meet our international obligations, but this did not have significant effects on their opinions about strengthening carbon taxes or other climate mitigation strategies.**

# APPENDIX

Our survey data team conducted an online panel survey of 1,554 Canadian citizens 18 years and older using Dynata. The sample was gathered from August 17-23. Data was weighted within each region of Canada by gender and age based on data from the 2016 Canadian census. We used an iterative proportional fitting algorithm for our weighting procedure with a minimum weight of 0.25 (N=21) and a maximum weight of 1.96 (N=29).

Survey respondents were asked questions related to basic demographics, as well as their partisan, ideological and issue preferences. They were also asked to identify their recent exposure to the news media. They were also exposed to a pair of experimental manipulations and afterwards asked a series of follow up questions to gauge their effects. The median time it took respondents to complete the survey was 17 minutes. The survey instrument is available upon request.

Our results related to respondents' most important problem can be generalized to the full population with a 95% confidence interval of +/-1-2%. Confidence intervals are wider for partisan sub-sets. Our results related to environmental dimensions, and climate science and mitigation policy, can be generalized to the full population with a 95% confidence interval of +/-2-3%. Confidence intervals are wider for partisan sub-sets. Our estimates of the opposition to carbon taxes at different price points provided in Figure 8 display 90% confidence intervals. Our estimates of the answers provided by respondents to the Paris Accord fact question in the treatment and control groups can be generalized to the full population +/-3-4%. Confidence intervals are wider for partisan sub-sets.

Twitter data was collected from accounts belonging to five categories of Twitter users: 1) major party candidates, for a total of approximately 950 candidates (including the two high-profile independent candidates, Jody Wilson-Raybould and Jane Philpott); 2) a list of approximately 450 political journalists; 3) approximately 300 politically relevant third parties (including third parties registered with Elections Canada); 4) members of the public who included Canadian political hashtags in their tweets (e.g. #cdnpoli, #polcan, #elxn43); and 5) 133 official Twitter accounts of news organizations that cover Canadian politics. The initial seed lists and hashtags have been expanded by looking at co-occurrence and engagement with existing accounts. For hashtags, if two hashtags appear in a tweet, one of which is then flagged and manually reviewed for applicability. For additional handles, each individual who replies to or is replied to by someone either on the seed list or a candidate is then added to a list which is reviewed manually and added to the data collection.

To develop a measure of issue emphasis for parties and journalists, each week the top 10 stories shared as links on Twitter by candidates from the six main parties and the top 50 stories shared by journalists were hand coded as having their core subject matter being about a range of issues. Since data collection began in early June, 1,142 stories have been coded of which 165 pertained to the environment. These 165 were then subsequently coded as one or more of the eight environment sub-areas.

To identify all the stories pertaining to the environment, the full collection of 38,735 English- and French-language stories was checked for explicit reference to a party leader, legislation, the legislature or the election itself, leaving 11,257 politics-related stories. These stories were then checked against a broad range of environment-related terms (e.g. climate change, Paris accords, wildfires) and only those that contained a minimum of one environment-related term were retained, leading to a dataset of 2,172 articles (representing approximately 19% of politics-related coverage). All the environmental stories in this dataset were checked against environment-related key-terms aligned to the eight issue areas we discuss.

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