The Liberal Party With the Lead and Some Emerging Issues That Require Government's Attention

Chien-Che Hung 1004330164

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Non-Technical Executive Summary

Petit Poll has been hired by the Liberal Party to conduct the 2020 October Monthly Polling updates on approval rating and public opinions of the current government. Future federal elections could reference the results of this survey and analysis. In our survey methodology, each province has been assigned to a sample number according to its ratio to Canada's population. The samples would be interviewed by phone. Due to the COVID-19 pandemic situation right now, the ideology the Liberal Party had during the 2019 Federal Election would ultimately be different. Thus, it is essential to understand people's thoughts under the current situation. After simulating the data, we found that people are generally satisfied with how the government responded to the COVID-19 situation. However, this pandemic also creates issues that people are starting to notice: the economy and health care. In general, people are satisfied with the government leads by the Liberal Party and Prime Minister Justin Trudeau, in which 37.2% of the respondents are willing to vote for him if the election is held today. Also, he recieves the highest rating in the age group 24-35 and 65+. For the approval ratings in the provinces, he has the largest lead in British Columnbia with 15% compared to the Conservative Party which comes second. (For detail statistics, please check Table 2.)

Despite these simulated results positively showing the government's performance, our survey under-sampled people who support Bloc Quebecois in Quebec, which leads to the Liberal Party having a higher rating in Quebec. Since this survey identified the satisfaction and the issues that Canada faces, we should dive into the issue such as the economy and see how the government can help with the issue for our future work. After the government's action, we can conduct the survey again and see people's reactions to the actions. From modifying the policies and surveying continuously, the party can quickly know how to improve their policies.

Introduction

This report is a simulated monthly polling update conducted by Petit Poll for the Liberal Party of Canada during the COVID-19 Pandemic in 2020. This report would be references for future Federal Elections. Generally, the Liberal Party of Canada, led by Justin Trudeau, has a 5.9% lead compared to the Conservative Party led by Erin O'Toole. Also, the Liberal Party has a lead in different age groups and different provinces. With the effects of COVID-19, job markets and health care systems start to play a significant role in Canada's issue. This report will discuss the survey methodology implemented and the results that we obtained after analyzing the survey in detail. The following links are the GitHub Repo for this analysis, please follow the instructions to reproduce the results.

- To access the R Markdown report file please check this GitHub Repo link:

https://github.com/frankkhung/election_simulation/blob/main/election_result.Rmd

- To access the code that simulate the data please check this GitHub Repo link:

https://github.com/frankkhung/election_simulation/blob/main/A2_report.Rmd

Before running the simulation file, please download files in the following github repo links:

- https://github.com/frankkhung/election_simulation/blob/main/98-402-X2016010-11.csv
- https://github.com/frankkhung/election_simulation/blob/main/10952320201004121154.xlsx

Before running the R Markdown report file, please download the following simulated election data.

- https://github.com/frankkhung/election_simulation/blob/main/election_data.xlsx

Survey Methodology

In this section, we will talk about the survey methodology used in our polling procedure. Since it is polling regarding the Federal Election, the **population** would be all the Canadian Citizens eligible to vote (people who are older and including 18 could vote in Canada). The **sampling frame** would be the telephone directory. According to Canadian Ratio-Television and Telecommunications Commission, 99.3% of the household had subscribed to either Landline phone service or Mobile Service (Government of Canada, 2019). Thus, with the area code's help in different provinces, for instance, the Ontario area code is 647, 437, 249, etc. (Canada Area Code) and random digit dialing, we can successfully conduct Stratified Sampling and Simple Random Sample Without Replacement in each stratum. Since the proportion among the provinces is different, we used *the proportional allocation* method to decide how many samples we should obtain in each province, which sets the stratum sample size n_h proportional to the stratum population size N_h. The formula is the following.

$$n_h = \frac{n}{N} N_h = n W_h$$

However, since we need to create an unbiased survey and conduct a phone interview for our samples, this method's cost is exceptionally time-consuming and labor-intensive. Before actually collecting the data, we need to randomly generate the phone numbers and make sure that the numbers work. Despite the time-consuming factor in the process, we believe that using random phone dialing would be a better option than Internet Surveys. It is comparatively easy to be biased for internet surveys since different provinces could have different political stances, which we cannot distinguish through internet surveys.
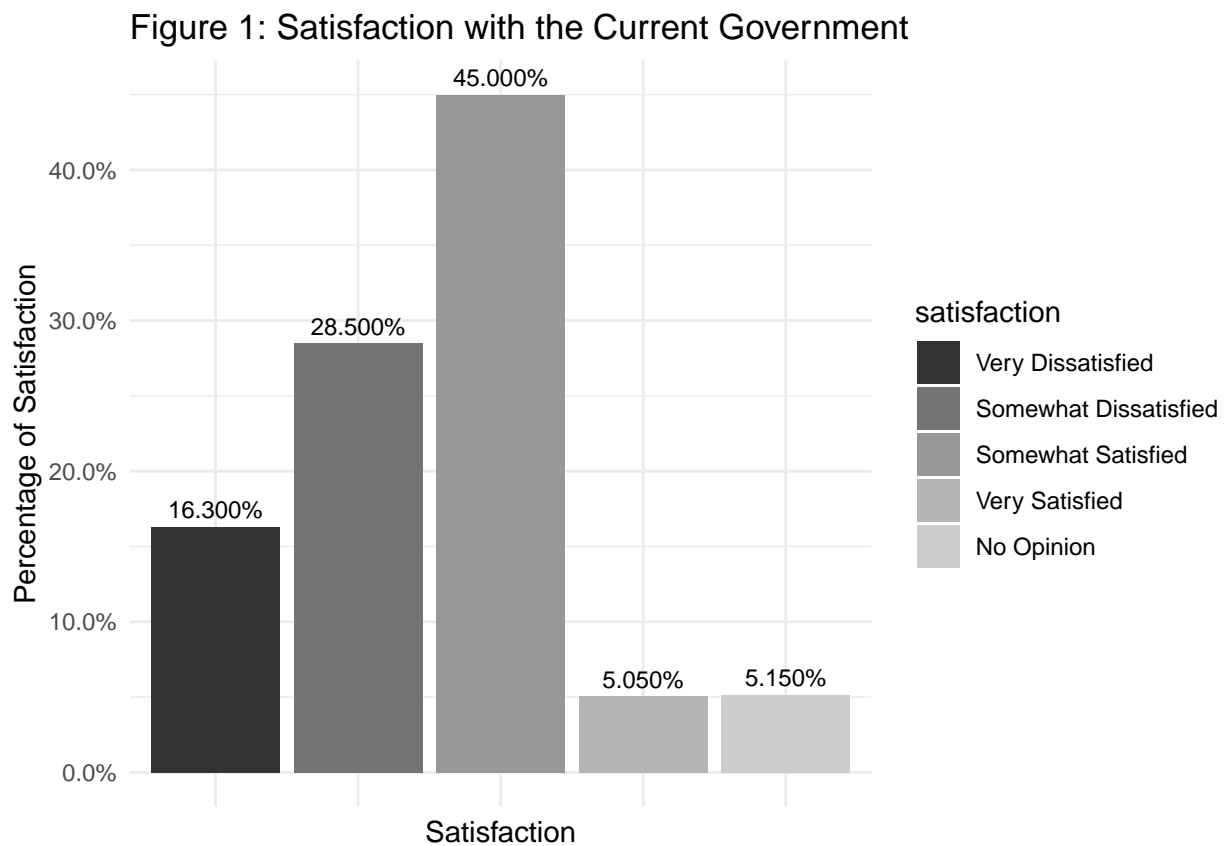
Since we are randomly generating the phone numbers, if there is a non-response sample, we would generate another phone number to survey. Also, there would not be any privacy concerns in this situation because the survey does not ask samples' regarding their personal information.

Results

The survey touched on several topics: satisfaction with the government, how people value the government's ideology, response to COVID-19, issues in Canada, and citizens' voting intentions. This section will thoroughly go through these topics.
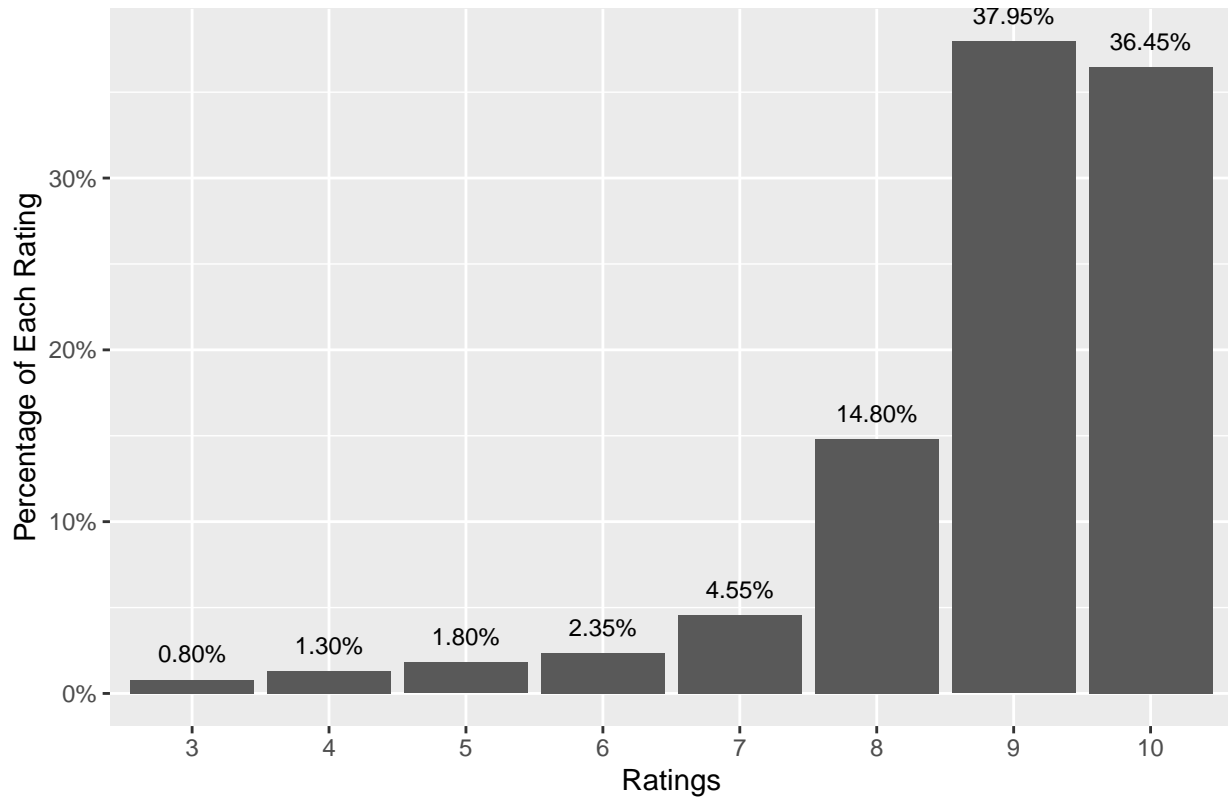
Question: How is your satisfaction with the current Canadian government? (Figure 1)

During the Pandemic, the Liberal Party is ahead of other contenders in Canada's political environment. We can see that in Figure 1 below. 45% of the people we surveyed rated that they are somewhat satisfied with the current government and what they are doing. On the other hand, there are 16.3% of the people dissatisfied with the government.

Figure 1: Satisfaction with the Current Government

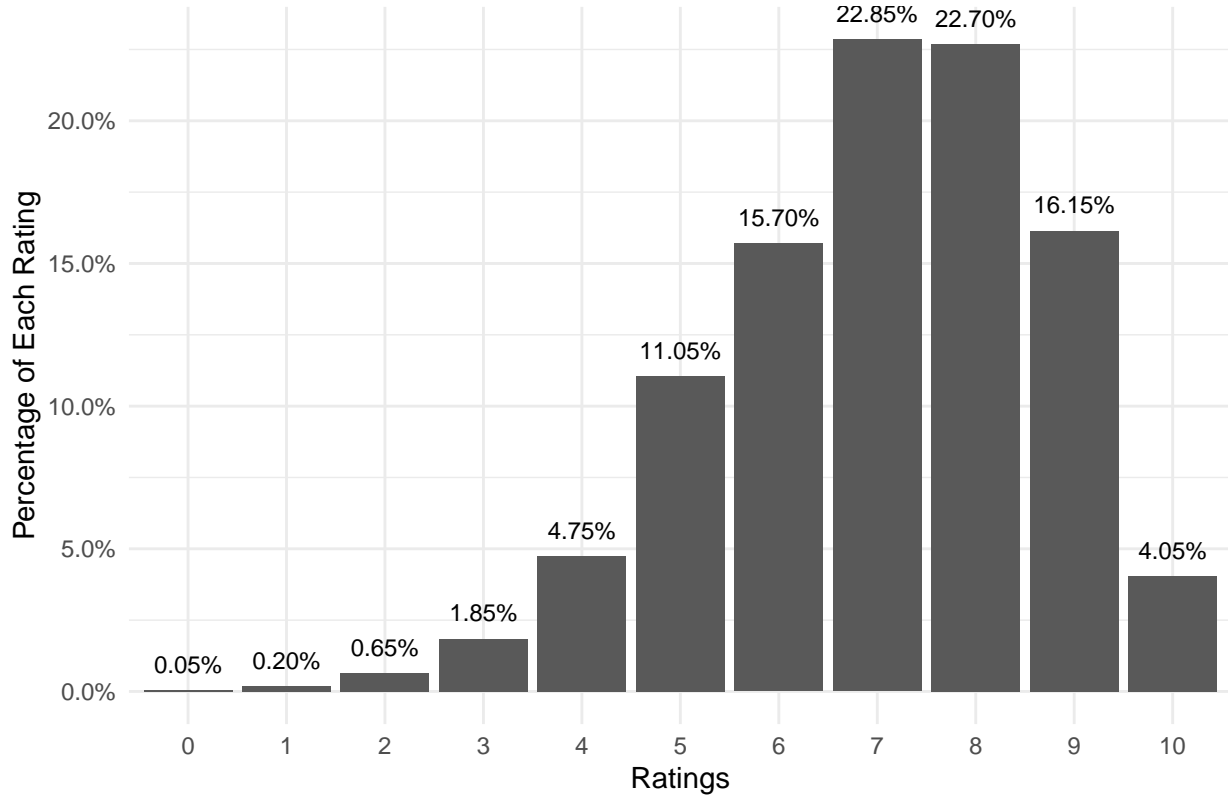**Question: How much do you value the alignment between you and the candidate's policies? (Figure 2)**

Figure 2: Ideology Alignment

From rating 1 to 10, the average rating for how people value their ideology alignment with the government is 8.87. The highest portion at rating 9 (37.95%) means that people value governments' policies and ideology highly rather than being partisan of the parties.

Question: How would you rate the current government's response on combating COVID-19? (Figure 3)

Figure 3: Rating for Government's Response on COVID−19

As this survey is conducted during the COVID-19 pandemic, we want to know how Canadian citizens think about the government's performance. Generally, without considering each province, from rating 1 to 10, the mean is 7.029. However, since we conducted Stratified Random Sampling Without Replacement, we can apply the weight in each stratum to estimate the overall population mean, with the following formula:

$$\bar{y}_{st} = \sum_{h=1}^{H} W_h \bar{y}_h$$

The result would be an unbiased estimator for the population mean. For the variance, we can obtain it by

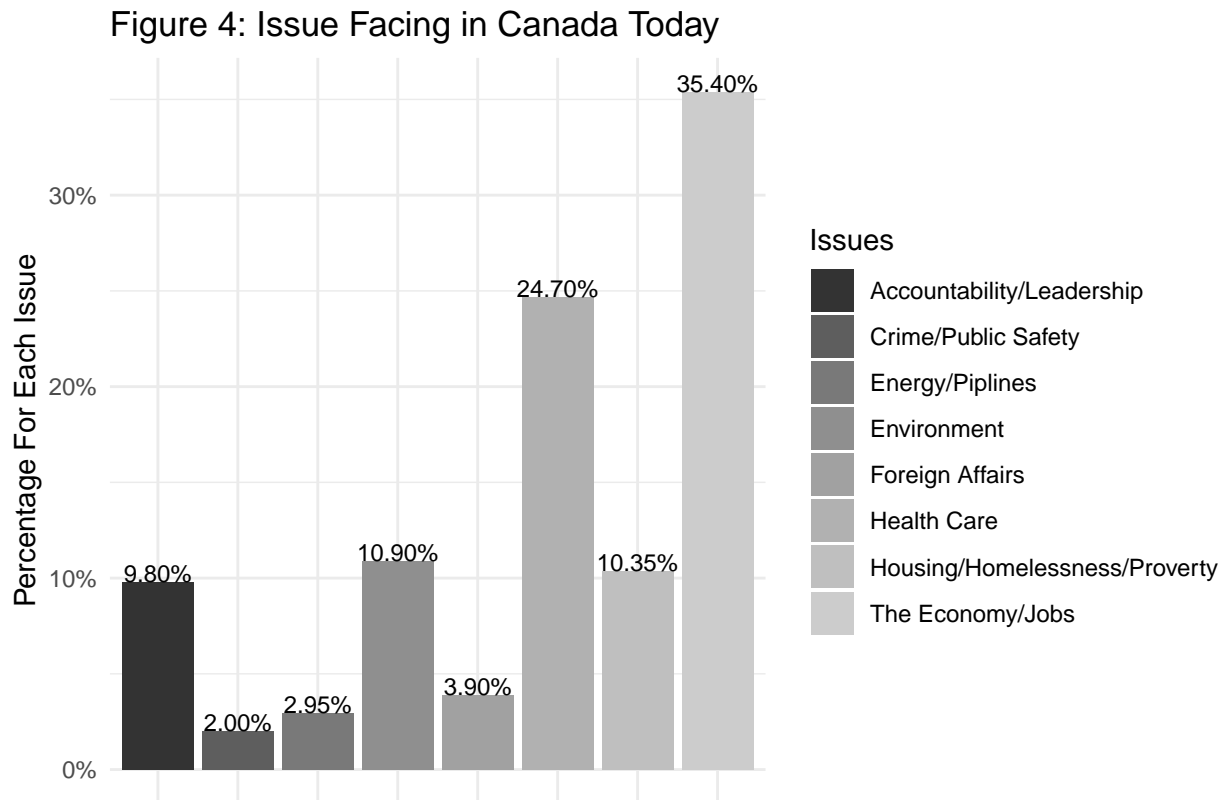$$v(\bar{y}_{st}) = \sum_{h=1}^{H} W_h^2 (1 - \frac{n_h}{N_h}) \frac{s_{yh}^2}{n_h}$$

With this information, we can get an inference of the population. The population's average rating is 7.0236, with a standard deviation of 0.001412 (Table 1).

Table 1: Population Inference from Stratified Sample

Mean	Standard Deviation	5%	95%
7.02361	0.00141	7.02502	7.0222

Question: In your opinion, what is the most important issue facing in Canada today? (Figure 4)

Figure 4: Issue Facing in Canada Today

Here, we separate the issues into eight categories, Leadership, Crime, Energy, Environment, Foreign Affairs, Health Care, Housing, The Economy. Among all, concerns regarding the economy and health care have the first and second large percentages, 35.4% and 24.7%. Crime and Public safety come last among all the issues.

Question: If the Federal Election were being held today, who would you vote for? (Table 2)

From the last question of the survey about the voting intentions with overall consideration of the situation now, we can separate into different categories to evaluate each leader's performance. The categories are the column names in the table, such as the ages and provinces. From a macro perspective, Justin Trudeau's Liberal Party receives an approval rating of 37.2%, which is 6.1% ahead of Erin O'Toole's Conservative Party (31.1%). Specifically, the voting intentions to vote for Justin Trudeau lead in the largest four provinces, Ontario, British Columbia, Alberta, and Quebec. Comparing to other provinces, the Liberal Party has the highest supporting percentage in British Columbia, with a difference of 14% ahead of the Conservative Party. For other provinces, the percentage of people who would vote for Justin Trudeau's Liberal Party is still higher than other leaders and parties. Interestingly, when we look at the distribution of the people who would vote for the Liberal Party in different ages, the age group 25-34 and 65+ stand out with the massive difference between the Liberal Party and the Conservative Party.

Table 2: Voting Intentions (In Percentages)

	18-24	25-34	35-44	45_54	55-64	65+	Ontario	British Columbia	Alberta	Quebec	Other	Total
Justin Trudeau/Liberal	34.55	40.55	33.13	39.11	34.10	40.05	35.54	42.25	39.32	37.07	34.47	37.20
Erin O'Toole/Conservative	29.09	27.44	33.13	35.20	32.95	28.44	32.89	27.46	32.91	30.82	28.41	31.10
Jagmeet Singh/New Democratic	20.45	14.94	20.74	15.92	17.77	16.82	18.30	16.20	14.96	17.24	19.70	17.55
Bloc Québécois/Yves-Francois Blanchet	6.82	7.01	5.57	3.63	6.30	6.40	5.17	5.63	5.98	6.68	6.82	5.90
Annamie Paul/Green Party	5.91	6.10	4.33	4.75	6.59	6.64	6.50	5.28	4.70	4.74	6.82	5.75
Others	3.18	3.96	3.10	1.40	2.29	1.66	1.59	3.17	2.14	3.45	3.03	2.50

Discussion

Regarding the 2020 October simulated polling result, it would be significantly affected by the government's response to the current COVID-19 situation. With the 45% of the people that we surveyed in the "Satisfied" category and the high rating on how the government responded to the situation for the past few months, we can say that the citizens are positively accepting what is coming from the Liberal Party and Justin Trudeau. Also, we can see it from his approval rating. Compared to his other direct competitor (Table 2), 37.2% of the people would vote for him if the election is held today. Combining the chart of important issues and how people value their ideology with the government, we can know that the governing party should shift their focus to creating more jobs and securing a better health care system. Overall, the Liberal Party, led by Justin Trudeau, leads other parties and leaders in different categories, regardless of provinces or different age groups.

Weaknesses

Despite the positivities that the survey and the result given to the Liberal Party, there are still some weaknesses. With this survey methodology, three provinces only have one or two respondent: Northwest Territories, Nanavut, and Yukon (Table 3). Only one respondent's situation would make the survey too biased in these provinces since one person cannot represent the population entirely. One solution to this situation would be to survey more people regardless of the ratio from the telephone dialing process and the weight they respond afterward. Second of all, the measuring standards for different people are different. For instance, the satisfaction level and the rating problem would differ from person to person. However, with these questions, we can still acquire a certain standard of the answers. Lastly, since the data is simulated based on some present data, such as the 2016 census data, many situations would be hard to consider. For example, in Quebec, more people would vote for Bloc Quebecois (see Table 2 for reference). However, we simulated the data with the approval rating overall from the CBC polling website. It would be hard to control that Quebec should be more supporters for certain parties.

Table 3: Samples From Each Province

Which province or territory do you live in?	n
Alberta	234
British Columbia	284
Manitoba	64

Which province or territory do you live in?	n
New Brunswick	31
Newfoundland and Labrador	28
Northwest Territories	1
Nova Scotia	62
Nunavut	2
Ontario	754
Prince-Edward-Island	6
Quebec	464
Saskatchewan	68
Yukon	2

Appendices

- Here is the link to the survey: (https://forms.gle/iyUZQNJTvKeDLMas8)

Screenshots of the surveys

Petit Fall's Monthly Survey – Demographic

*必填

Which province or territory do you live in? *

○ British Columbia

○ Alberta

○ Saskatchewan

○ Manitoba

○ Ontario

○ Quebec

○ New Brunswick

○ Nova Scotia

○ Prince-Edward-Island

○ Newfoundland and Labrador

○ Northwest Territories

○ Nunavut

Please indicate your sex *

○ Female

○ Male

○ Prefer not to say

How old are you? *

○ Under 18

○ 18-24

○ 25-34

○ 35-44

○ 45-54

○ 55-64

○ 65+

What is your highest education level? *

○ No certificate, diploma or degree

○ Secondary (high) school diploma or equivalency certificate

○ Apprenticeship or trades certificate or diploma

○ College, CEGEP or other non-university certificate or diploma

○ University certificate or diploma below bachelor level

○ University certificate, diploma or degree at bachelor level or above

Figure 1: Survey_1

Petit Fall's Monthly Survey - Election

How's your satisfaction with the current Canadian government?

○ Very Satisfied

○ Somewhat Satisfied

○ Somewhat Dissatisfied

○ Very Dissatisfied

○ No Opinion

How much do you value the alignment between you and the candidate's policies?

	1	2	3	4	5	6	7	8	9	10	
Bad	○	○	○	○	○	○	○	○	○	○	Excellent

How would you rate the current government's response on combating COVID-19? *

	1	2	3	4	5	6	7	8	9	10	
Bad	○	○	○	○	○	○	○	○	○	○	Excellent

In your opinion, what is the most important issue facing in Canada today? *

○ The Economy: Jobs

○ Environment

○ Health Care

○ Housing/Homelessness/Poverty

○ Accountability/Leadership

○ Energy: Pipelines

○ Crime: Public Safety

○ Foreign Affairs

If the Federal Election were being held today, who would you vote for? *

○ Justin Trudeau's Liberal Party of Canada

○ Erin O'Toole's New Democratic Party of Canada

○ Andrew Scheer's Conservative Party of Canada

○ Elizabeth May's Green Party of Canada

○ Maxinme Bernier's People's Party of Canada

○ I prefer not to answer

Figure 2: Survey_2

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