Prediction of the 2019 Canada Election Results Under a 100% Voter Turnout Rate

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09/12/2020

Abstract

This study forcast the 2019 canada election results if all Canadian who have the legal right to vote voted in the election. In the study we use Multilevel regression and post-stratification and Bayesian logistic regression. And we find that the election results will not change if all Canadain voters vote.

Keywords

Election, Election Prediction, Voter Turnout

Introduction

In 2019 Canada election, the population of Canada is 35,151,728, only 27,373,058 of them registered as electors on the list, and only 18,350,359 of them make the final vote. The voting rate is 67.0%. The fact would suggest that only 67% of Canadian, who have the legal righ to vote, vote at the election day, and their decision finally comes to the new leadership of the country in the next four years. But what if all Canadian voters exercise their right to vote?

In this study we would like to predict the 2019 Canada election results under a hypothesis that all Canadian who have the legal right to vote have vote, in other words giving the voter turnout of 100%. And we can see if the election results still stay the same, or since more than 30% of Canadian voters did not vote, the actual 2019 Canada election results have some "bias".

We use data from the data from 2019 Canadian Election Study by phone, and we build a logestic regression model on some chose variables choosing by backward elimination using AIC and BIC to predict their choice on the election containing the variable that record their voting willingness. And we do a Post-Stratification using the data from the 2019 Canadian Election Study online survey. After we get the probabilty of the Liberal party winning the election and the probability of the Conservative party winning the elction, we will transform the variable that record people's willingness to vote in the dataset into certain to vote, and check how the probability change. Then we can come up to the conclusion that if every Canadain voters vote, the election result will not change.

Data

Data Loading

```
## Warning: replacing previous import 'vctrs::data_frame' by 'tibble::data_frame'
## when loading 'dplyr'
## -- Attaching packages --------------------------------------------------------------- tidyver
## v ggplot2 3.3.2     v purrr   0.3.4
```

```
## v tibble  3.0.3     v dplyr   1.0.0
## v tidyr   1.1.0     v stringr 1.4.0
## v readr   1.3.1     v forcats 0.5.0

## -- Conflicts --------------------------------------------------------------------- tidyverse_con:
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

Data Cleaning

Exploratory Data Analysis

Methods and Model

Post-Stratification

Discussions and Limitations

Reference

Voter Turnout at Federal Elections and Referendums https://www.elections.ca/content.aspx?section=ele&dir=turn&document=index&lang=e