

Canadian and Provincial Election Polls. An Update to 2021¹

A White Paper presented to the Canadian Research Insights Council (CRIC) in advance of its *Election Polls in Canada: What Governments and Brands can Learn about Citizens and Consumers Today* virtual conference, November 10, 2021

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Sampling and Interviewing Modes

The polling industry, over the past twenty years, has moved away from using live interviewers when conducting surveys with randomly selected households. Today, this has largely been replaced by other approaches, with all three showing themselves to be reliable. The first involves the continued use of random sampling but with interactive voice response (IVR) systems which have for the most part replaced more costly live interviewers. The second is to conduct online surveys with representative samples drawn from panels consisting of pre-recruited respondents.² This type of sampling shares certain features with quota sampling methods that were deployed in a bygone era by such practitioners as Richard Crossley, Elmo Roper, and George Gallup. Regardless of the approach used, pollsters endeavour to create representative samples. Or, in the words of Gallup and Saul Rae in their 1940 co-authored *Pulse of Democracy*, they seek to create a “miniature electorate.”³ (Gallup and Rae, 1940).

This paper provides described the different modes and sampling methods now used and the extent to which current election survey research in Canada is accurately showing voter preferences. This is done by examining a total of 81 polls conducted with the Canadian electorate in the final five days of all 18 Canadian federal and provincial elections in which polls were released from 2015 to 2020.⁴ Added to this, is an assessment of the polls that were released in the final two days of the 2021 Canadian Federal Election.

¹ This paper provides updated data to what was presented by the author at the annual meeting of the World Association for Public Opinion (WAPOR) in October 2020.

² There is a certain myth surrounding probability sampling in that it presumes a rate of 100 percent compliance (Ansolabehere and Schaffner, 2018), when in fact, response rates have dramatically declined in recent decades from 80 percent to 10 percent (Matthews, 2015, 106). Ten percent may be too high an estimate, with some industry practitioners in Canada reporting that five percent is a more accurate figure (Brown, 2019).

³ Gallup, George, and Saul Forbes Rae, *The Pulse of Democracy: The Public-Opinion Poll and How It Works*. New York: Simon and Schuster, 1940.

⁴ There was a total of 19 elections during this period, however, there were no polls released in the final five days of the PEI provincial election. Studied here are the polls released to the media during the final five days of the general elections. Excluded are those that focus only on a specific portion of the

There is no secret that in recent years respondents have become much more difficult to interview via telephone, in part due to call screening and voicemail, but also due to their abandonment of household landlines in exchange for mobile devices. The Canadian Radio-television and Telecommunications Commission (CRTC) reported in 2018 that from 2012 to 2016, landline telephone subscriptions in Canadian households declined from 83.8 percent to 66.8 percent, while among Canadian households subscriptions to mobile devices increased from 81.3 percent to 87.9 percent (CRTC, 2018). To address this relatively new challenge for those relying on RDD outreach, polling firms must now acquire lists containing both landline and mobile phone numbers. By 2017, in the USA the Pew Research Center was conducting three-quarters of its interviews via mobile devices (Gramlich, 2017). One problem, however, is that compared to landline phones, lists of mobile phone numbers are more expensive to acquire. For example, in 2019 the Ottawa-based firm ASDE was providing sample to many polling firms across North America containing active mobile phone numbers priced at 22 cents each, which is more than twice the cost for landline numbers at eight cents each (Bell, 2019).⁵

While switching to mobile phones, many Canadians also now communicate online, via email and social media. According to one estimate reported in *The Economist*, across the globe 300 billion emails are sent each day (Schumpeter, 2020, 15). According to the Canadian Internet Registration Authority (CIRA), by 2016, 86 percent of Canadians had a broadband Internet connection in their home (CIRA, 2018). The impact this has had on the Canadian polling industry was noted as early as 2009 when the Canadian Marketing Research and Intelligence Association (MRIA) reported that online surveys were quickly replacing traditional telephone surveys (Brydon, 2011). The impact of these developments is that Canadians are now surveyed using three different modes. These are: 1) through random digit dialing (RDD) with live interviewers reaching respondents to conduct an interview; 2) through Interactive Voice Response (IVR) systems involving automated telephone technologies to contact respondents, who, when reached, answer questions by pushing buttons on their phones; and 3) conducting online surveys with samples usually derived from pre-recruited panels.

- **Interactive Voice Response**

The use of IVR for polling is now a generally accepted practice, especially for gauging voter intentions. Because telephones and mobile devices involve numeric keypads, IVR allows respondents to respond to pre-recorded questionnaires based on closed-ended questions (Roos, 2008). The system is cost-effective in that it bypasses the need to use field centres equipped with interviewers and supervisors, each drawing hourly wages. Furthermore, because it is an automated system, the speed by which large numbers of interviews are conducted is limited only by the firm's computer capacity, having sufficient sample, and the number of telephone lines available for outbound calling. IVR

electorate or riding-specific polls. For any firm that released more than one poll in a specific five-day period, the earlier poll is excluded.

⁵ According to its website, ASDE was founded in 1994, and “provides market research and survey professionals with services that include telephone samples as well as related products such as sampling software, predialing and list cleaning, list matching and IVR services” (ASDE, n.d.). The firm's Executive Vice President, Randa Bell, reports that prices will vary according to sample specifications and volume discounts (Bell, 2019).

is now widely used for polling voters in Canada. This stands in contrast to the US where federal law prohibits the use of auto-dialing technology for contacting those with mobile devices (DeSilver and Keeter, 2015).

In 2008, EKOS was the first major Canadian polling firm to provide the public with national results using IVR. It did so by conducting 1,000 completed surveys per night (Waddell, 2009, 245-6). During the 2013 national Liberal Party leadership campaign, EKOS was able to reach out to 40,000 party supporters, of whom 6,455 completed an automated interview (Grenier, 2014, 26). The speed by which large samples can be interviewed by IVR in a single day can be breathtaking. During the 2019 Alberta provincial election, for example, Forum Research and Mainstreet Research each used IVR to produce results based on more than 1,000 interviews in a single day (Forum Research, April 16, 2019; Mainstreet Research, April 15, 2019). A review of recent elections reveals that IVR is now a mainstay of Canadian polling. Out of a total number of 69 polls conducted in the final five days of all the provincial and federal elections held in the years 2015 to 2019, IVR was the most used mode of all, with 32 involving IVR-based surveys. This is in comparison to only three that were done fully by telephone with live interviewers (Nanos Research conducted all three) and 29 polls involving online surveys (Adams, 2020, 15).

- **Online Research**

In recent years claims have been made that online surveys in Canada produce results that are just as reliable as those based on telephone interviews (Breton *et al*, 2017, 1006; Angus Reid, 2020). This has also been asserted for some time in other jurisdictions. Evelyn Byztek and Ina Bieber, in their examination of polling data from the 2009 German national election, observed “that the data quality of online, telephone and face-to-face surveys is comparable. Hence, online surveys are useful for electoral research” (2016, 41). Likewise, Stephen Ansolabehere and Brian Schaffner, in their American study of national polls in 2010, compared results from online surveys with telephone-based studies and concluded that “a carefully executed opt-in Internet panel produces estimates that are as accurate as a telephone survey and that the two modes differ little in their estimates of other political indicators and their correlates” (2014, 285).

Online panels include large numbers of people, which allows a firm to select samples according to very specific characteristics. For firms that have neither the interest nor capacity to create and steward their own online panels, panels built and maintained by a third party are also available. The panels vary in size and scope. There are also companies that sell access to multiple proprietary polls. ESOMAR has recently published *Questions for Users and Buyers of Online Sample* that includes a series of questions to consider when evaluating proprietary panels and resellers of panels. Some examples are cited in my presentation to CRIC on November 10, 2021 at their virtual conference *Election Polls in Canada: What Governments and Brands can Learn about Citizens and Consumers Today* and can be viewed on-demand.

One manner by which online sample is collected is “river sampling” by which respondents are recruited through banner or pop-up advertising or by simply stumbling onto a website (Steber, 2018). One should consider this a modern form of availability sampling, or what Earle Babbie almost fifty years ago called “street corner sampling” 4

(1973, 308).⁶ One approach used by many firms to build up their own online panels is to include a recruitment question at the end of every telephone survey, regardless of the topic. This is the “opt in” aspect of the panel, with respondents asked to provide permission to be contacted again in the future. At this point, they ask for the respondent’s email address and other contact information. After the conclusion of the interview, the respondent receives a link to an online survey, thereby gaining additional information which enhances the respondent’s profile in the panel.⁷

Having a large panel signifies that sample can be pulled according to specific quotas. The research manager will pre-select the sample according to personal characteristics such as age and gender; and socio-economic characteristics, such as level of education and household income. When asked in 2020—through personal correspondence—representatives from three national firms that rely on online panels about how they pull their samples, the following statements were given:

A big national survey would initially be stratified by region and sub-region to ensure good represented geographic coverage. There would also be some specifications, aka quotas set on mainly socio-demographics, most especially for a [general population] survey would be gender, age, and education (the variable typically [we] use instead of household income [which is] highly correlated, [with] less missing data... Those additional specs might be set overall or within the main regions. Even a very good and large panel would have some skews... There’s also differential response rates among different groups [which] are not always easily predictable. You’d weight after-the-fact if/as needed to get things ideally aligned.

- Mag Burns, Angus Reid Institute, August 18, 2020

For the most part we apply a stratified random sample method based on age, gender, and region, tying in typical response rate for each of the cohorts so that we know how many we need to invite in order to get the more-or-less right number at the end of it all. Basically our internal system allows us to set overall N for the entire project, we would adjust slightly the regional and demo[graphic] target proportions to reflect the most recent census rep[resentative] numbers. This calibration and way of proceeding allows to prepare the sample while

⁶ Some firms compile panels for one purpose, but will give access to a paying client who seeks to use it for another purpose. For example, during the 2017 Calgary Municipal Election the firm AskingCanadians provided sample collected from consumer loyalty programs to conduct an election poll for the local advocacy group LRT on the Green. The results for reasons attributed to both the sample and questionnaire design differed greatly from the final vote (Adams, *et al*, 2018, 33-3).

⁷ While I served as a Vice President with the Angus Reid Group, later Ipsos-Reid, in the late 1990s and early 2000s, the firm introduced a company-wide policy that all surveys of the Canadian population, regardless of the topic or client for which the survey was being conducted, were to have a recruit-to-panel question at the end of all surveys. This was also the practice but only for general-population surveys at Probe Research where I worked from 2004 to 2012.

factoring in response rates based on some demographics. As an example, it would oversample for younger age demographics because they typically respond less, same for males, it would undersample (I know this is not even a word!) in Quebec because response rates are typically higher, etc. A Project Manager will top-up mid-way, correcting for any estimated response rates that are off. At the end we apply statistical weighting as required.

- Steve McDonald, Vice President, Operations, Léger, August 18, 2020

We always set specific quotas for gender, age and region when we do our sample requests. Relying on various panels allows for better representation of these variables than with an in-house panel. Weighting is minimal.

- Mario Canseco, President, Research Co., August 18, 2020

The following table provides an overview of different aspects of polls based on three different sampling methodologies that have been used since the 1940s.

Table 1: Quota, Probability (RDD) and Online Panel Studies

Project Elements	Studies using Quota Sampling	Studies using RDD Sampling	Studies using Online Sampling
Accessing respondents	Intercept or door knocking	Random dialing from sample files	Pre-recruit by availability or lists
Sample design	Quotas based on census figures and other social data	Random probability	Quotas based on census figures and other social data
Interviewer instructions for recruiting	Interviewers assigned quotas for specific variables.	Programmed in Computer Assisted Telephone Interviewing (CATI) software	N/A
Interview mode	Face to face interviews	Live interviewer or automated IVR	Automated online
Data processing	Responses keypunched and tabulated using punch cards	Surveys processed directly using software	Surveys processed directly using software
Statistical weighting	By mathematical calculation or	Automated weighting	Automated weighting

	duplicating punch cards for underrepresented sub-populations		
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Part 2: Canadian Polling and Elections: 2015-2020

George Gallup argued that elections serve as an “acid test” for a survey firm’s techniques.⁸ To assess the techniques now used, this second section provides a comparison of results arising from different methodologies for polls released in 18 general elections held in Canada from 2015 to 2020. The polls examined are those released to the media in the final five days of each provincial and federal campaign.⁹ Table 1 shows the winning party’s vote, the number of firms in the final five days of the campaign, and the average differences within each jurisdiction between the polls and the vote.

For the period of 2015 to 2020, a total of 17 firms released 81 polls in the final five days of each of the campaigns.¹⁰ The elections with the most polls in the final days of the campaign were:

- Twelve polls in the 2019 Canadian federal election
- Eight polls in the 2018 Ontario provincial election
- Seven polls in each of the 2015 federal election and 2019 Alberta provincial election
- Six polls in each of the 2018 Quebec provincial election and the 2020 BC provincial elections

Table 2 (below) shows that the polls were accurate within two points of the outcome in the 2016 provincial elections in Saskatchewan, Manitoba, British Columbia, and Nova Scotia and the 2019 federal election. The most accurate polls for the 2015 Canadian and the 2018 provincial elections in Ontario and New Brunswick had an average difference from the outcome of less than three points. Polls were the *least* accurate in the 2015 and 2019 Alberta provincial elections with a respective average difference of 3.17 and 6.84 percent; the 2015 and 2019 Newfoundland provincial elections with a respective average difference of 5.00 and 4.30 percent; the 2018 Quebec provincial election with an average 5.15 percent difference, and the 2020 provincial elections in

⁸ Quoted in Moore (1992, 72).

⁹ In the situation where the party that won the most seats was not the party that won the most votes, such as the case of New Brunswick in the 2018 provincial election and the 2019 federal election, the party with the most seats was selected for inclusion. This is also the case in the section that follows, which focuses on the 2021 federal election.

¹⁰ The initial list of polls created first by using Wikipedia’s coverage for each election in the 2015 to 2020 period. From this list, each poll was examined by going to each of the press releases and, in some cases, the media coverage for the poll. These are listed in this paper’s bibliography. In some cases, polling firms produced more than one poll during the brief five-day period examined. There were also cases in which multiple polls appeared in the five-day period due to having results from one poll “rolled” into a later poll. In a few other cases, a firm will have conducted a stand-alone single night IVR poll followed by a second stand-alone poll in the same five-day period. In either of these situations, I have eliminated the earlier poll releases from this study.

New Brunswick and Saskatchewan in which the respective differences were 4.07 and 4.90.

Table 2: Elections 2015-2020, Winning Party Vote, Final Polls, and Differences

Year	Election	Winning Party (Forming Government)	Winning Party % Vote	# Firms 5 days prior	Average Difference to outcome
2015	Canada	Liberal	39.5	7	2.09
2015	Alberta	NDP	40.6	3	3.17
2015	Newfoundland	Liberal	57.2	2	5.00
2015	PEI	Liberal	40.8	0	-
2016	Saskatchewan	Saskatchewan Party	62.4	4	1.95
2016	Manitoba	Prog. Conservative	53.1	4	1.80
2017	BC	NDP	40.3	5	1.26
2017	Nova Scotia	Liberal	39.5	2 ¹¹	1.50
2018	Ontario	Prog. Conservative	40.5	8	2.34
2018	Quebec	Coalition Avenir Québec	37.4	6	5.15
2018	New Brunswick	Prog. Conservative	31.9	2	2.80
2019	Alberta	United Conservative	54.9	7	6.84
2019	PEI	Prog. Conservative	36.7	2	3.80
2019	Newfoundland	Liberal	43.9	2	4.30
2019	Manitoba	Prog. Conservative	47.1	3	3.67
2019	Canada	Liberal	33.1	12	1.58
2020	New Brunswick	Prog. Conservative	39.3	3	4.07
2020	BC	NDP	47.7	6	2.68
2020	Saskatchewan	Saskatchewan Party	60.7	3	4.90
			Total Polls = 81		Average Difference 3.09

¹¹ Three polls were released to the public in the final days of the 2017 Nova Scotia campaign, however, the link to the media release from the polling firm, Corporate Research Associates (now operating as Narrative Research) which conducted the poll for the *Halifax Chronicle*, is now defunct. Until the media release can be located with the relevant information, this poll is not counted in the results for this study.

The 2021 Canadian Federal Election

Discussed so far has been the accuracy of polling in the final five days of all the provincial and federal elections for the period of 2015 to 2020. This paper now turns to the extent to which the polling results in the final two days of the 2021 federal election were accurate in measuring voter support for the national winner, that is, the Liberal Party, as well as for the other national parties. Table 3 (below) provides information about the 10 national polls that were released in the final two days leading up to the September 20, 2021 federal election.¹²

Table 3: The September 20, 2021 Federal Election – Last Two Days

Polling Firm	Fielding Dates	Media Release	Method
Abacus	Sept 17-19	Sept 19	N=2,431 Online
Angus Reid Institute	Sept 15-18	Sept 18	N=2042 Online
Counsel Public Affairs	Sept 16-18	Sept 19	N=3,298 Online
EKOS	Sept 16-19	Sept 19	N=1,662 IVR
Forum Research	Sept 19	Sept 19	N=1,181 IVR
Ipsos	Sept 15-18	Sept 18	N=2,359 Online +Telephone
Leger	Sept 14-17	Sept 18	N=1,541 (+604 Quebec) Online
Mainstreet	Sept 17-19	Sept 19	N=2,211 IVR
Nanos Research	Sept 19	Sept 19	N=800 Live Telephone
Research Co.	Sept 18-19	Sept 19	N=1,541 (+604 N=1,800 (+800 BC) Online

¹² As with the analysis in the previous section, excluded from the calculations are polls by the same firm that were released in the same time period under study. The earlier polling is removed. For example, Mainstreet released a poll on both the 18th and 19th of September. Only the second poll is included in the analysis here.

Table 4 provides the average differences for the results comparing the averages from the ten national polls released to the media and the final vote for each of the federal parties that ran candidates across Canada. The bottom row shows the extent to which the polls either underestimated or overestimated each party's support.

Table 4: Average Polling Percentages for Each National Party in 2021

	Liberal	Cons.	NDP	PPC	Green
Polls	31.5	31.3	18.7	7.0	3.3
Vote	32.6	33.7	17.8	4.9	2.3
Difference	-1.1	-2.4	+0.9	+2.1	+1.0

For the Liberal Party, the polls on average underestimated its support by 1.1 points, whereas they underestimated the Conservatives by 2.4 points. The polls were closer in estimating the NDP's support, with less than one point difference. For the two small parties, the polls overestimated the People's Party of Canada (PPC) with an average of 2.1 points while they were closer in estimating the Green Party's support, overestimating it by just one point.

Conclusion

This paper has provided an examination of the 81 polls for all the provincial and federal elections that were released to the public in the final five days of the campaigns from 2015 to 2020. During this period, on average the polls were off by only 3.1 points in measuring the results for the winning party. The final section of this paper provides a focus on the more recent 2021 Federal Election, and the extent to which the polls were close to the final results. Of the ten polls released to the public in the final two days of the 2021 federal election, they were within 1.1 points of measuring the Liberal vote, and 2.4 points for the Conservative vote.

With all the challenges facing the public opinion research industry, which includes the decline in landline telephone usage, acquiring reliable samples, and reducing non-response bias among Canadians, with only a few exceptions, polling (survey research) in Canadian elections has been generally accurate in measuring voter preferences.

References & Bibliography

a. Personal Correspondence, Interviews

Bell, Randa, Executive Vice President, ASDE, personal e-mail communication, April 23, 2019.

Brown, Curtis, Managing Partner, Probe Research, personal email communication, January 4, 2019.

Burns, Mag, Angus Reid Institute, personal email communication, August 18, 2020

Canseco, Mario, President, Research Co., personal email communication, August 18, 2020.

McDonald, Steve, Vice President, Operations, Leger, personal email communication, August 18, 2020.

Reid, Angus, personal interview, July 20, 2020.

b. Media Releases and Company Materials

Abacus Data, "Abacus Data's Final Poll: Conservatives and Liberals are statistically tied on the eve of Election Day in Canada," Media Release, 19 September, 2021, <https://abacusdata.ca/election-2021-final-poll-abacus-data/>.

Abacus Data, "Election Poll: Regional races & turnout will decide an election with 2-points separating Liberals and Conservatives in Canada," Media Release, 20 October 2019, <https://abacusdata.ca/final-abacus-2019-canada-election-poll/>.

Angus Reid Institute, "Déjà vu all over again? CPC, Liberals locked in tight battle with smaller parties poised to make the difference," Media Release, 18 September, 2021, https://angusreid.org/wp-content/uploads/2021/09/2021.09.18_federal_final.pdf.

Angus Reid Institute, "Minority Report? NDP, Bloc successes appear to diminish majority aspirations for CPC, Liberals," Media Release, 15 October 2019, http://angusreid.org/wp-content/uploads/2019/10/2019.10.15_federal_Vote-1.pdf.

Angus Reid Institute, "Quebec Election Analysis," Media Release, 30 September 2018, online: http://angusreid.org/wp-content/uploads/2018/10/2018.10.01_Quebec_Reaction.pdf

Angus Reid Institute, "Election 2015: Liberals Edge Conservatives...." Media Release, 16 October, 2015, <http://angusreid.org/wp-content/uploads/2015/10/2015.10.15-Final-Horserace.pdf>.

ASDE, "History," Available at: <http://surveysampler.com/asde-inc-2/history-commitment-to-quality-chairmans-message/>.

Campaign Research, "'Canadians will choose a Minority Government," Media Release, 20 October 2020, <https://www.campaignresearch.com/single-post/Canadians-will-choose-a-Minority-Government>.

Canadian Viewpoint, "Online Services," n.d., <http://canview.com/services-online/#panels>.

Counsel, "Counsel predicts minority Liberal Parliament," Media Release, 18 September, 2021, <https://counselpa.com/insight/counsel-predicts-minority-liberal-parliament/>.

DART & Maru/BlueVoice Canada, "Down the Home Stretch," Media Release, 18 October 2019, <https://dartincom.ca/wp-content/uploads/2019/10/SunPostMedia-Fed-Vote-DTs-F-Oct-18-2019.pdf>.

EKOS, "Alberta NDP Headed to a Win, Likely a Majority," Media Release, 4 May 2015, online: http://www.ekospolitics.com/wp-content/uploads/full_report_alberta_may_4_2015.pdf.

EKOS, "Deadlock Broken, Liberals Surging," Media Release, 18 October 2015, online: http://www.ekospolitics.com/wp-content/uploads/final_report_october_18_2015.pdf.

EKOS, "EKOS Predicts PC Majority," Media Release, 6 June 2018, online: <http://www.ekospolitics.com/index.php/2018/06/ekos-predicts-pc-majority/>.

EKOS, "Liberals Headed to Form Government," Media Release, 19 September, 2021, <https://www.ekospolitics.com/index.php/2021/09/liberals-headed-to-form-government-2/>.

EKOS, "Liberals headed to Form Government: Within a Razor's Edge of Majority," Media Release, 20 October 2019, https://www.ekospolitics.com/wp-content/uploads/full_report_october_20_2019.pdf.

Forum Research, "Call Him Premier Ford," Media Release, 6 June 2018, online: <http://poll.forumresearch.com/data/60dff00c-da4c-4ec8-80d0-facd6331aa8dOntario%20final.pdf>.

Forum Research, "CAQ Government," Media Release, 30 September 2018, <http://poll.forumresearch.com/data/2e9414f0-fe18-4183-8c56-13582a51850aqc%20election%20final.pdf>.

Forum Research, "Federal Election Remains a Neck and Neck Race," Media Release, 19 September, 2019, <https://poll.forumresearch.com/data/a9c7ff7a-5a70-4850-a031-55e2ccb47152Federal%202021%20Election%20Prediction.pdf>.

Forum Research, "Liberals widen gap, Conservatives stall in final poll," Media Release, 18 October, 2015, [http://928dc876fef3Federal%20Horserace%20News%20Release%20\(2015%2010%2018\)%20Forum%20Research.pdf](http://928dc876fef3Federal%20Horserace%20News%20Release%20(2015%2010%2018)%20Forum%20Research.pdf).

Forum Research, "Minority Government," Media Release, 20 October 2019, <http://poll.forumresearch.com/data/6fb7bbcf-bdb3-479c-9e2e-0ccb6e11e75aFed%20Final%20Oct%2020%202019.pdf>.

Forum Research, "Minority Parliament...Almost..." Media Release, April 22, 2019, <http://poll.forumresearch.com/data/0beb9a09-1c1d-415d-a8df-2d63b8ac99d4PEI%20April%2022%202019.pdf>.

Forum Research, "NB Headed Toward Minority: Likely PC," Media Release, 23 September 2018, <http://poll.forumresearch.com/data/1057eeda-8d65-48d7-8a72-c4fb93758d9dNb%20final%202018.pdf>.

Forum Research, "Progressive Conservative Majority," Media Release, 15 May 2019, <http://poll.forumresearch.com/data/ca9b9839-b686-4d44-a4b7-aef51f4f8183Newfoundland Prediction May%2015%202019.pdf>.

Forum Research, "The Forum Poll: Manitoba Election," Media Release, 9 September 2019, <http://poll.forumresearch.com/post/3027/manitoba-election/>.

Forum Research, "United Conservative Majority," Media Release, 16 April 2019, online: <http://poll.forumresearch.com/data/6cf7383c-8c28-4468-832e-885570eb2cb4Alberta%20Election%202019.pdf>.

Innovative Research Group, "2019 Election: Seat Clusters," Media Release, 18 October 2019, <https://innovativeresearch.ca/wp-content/uploads/2019/10/2019-Federal-Election-Seat-Cluster-2019-10-18.pdf>.

Ipsos, "End of an Era: For a Second Time, a Trudeau is Headed to 24 Sussex as Liberals Poised to Win Election," Media Release, 18 October, 2015, <https://www.ipsos.com/sites/default/files/publication/2015-10/7031.pdf>.

Ipsos, "Conservatives (33%) Have Slight Lead over Liberals (31%) in National Popular Vote, but Liberals Hold Advantage in Ontario and Quebec," Media Release, 20 October 2019, <https://www.ipsos.com/en-ca/news-polls/With-Election-Close-and-Country-Divided-Who-Will-Get-Out-Their-Vote>.

Ipsos, "Election a Photo Finish with Conservatives (32%) and Liberals (31%) Neck and Neck," Media Release, 18 September, 2021, <https://www.ipsos.com/en-ca/election-photo-finish-with-conservatives-and-liberals-neck-and-neck>.

Ipsos, "Tories Poised for Majority as 905 Region Set to Deliver for Ford's PCs," Media Release, 6 June 2018, online: <https://www.ipsos.com/en-ca/news-polls/Global-News-Ontario-Vote-Call-Poll-June-6-2018>.

Ipsos, "Survey Report: Quebec Politics," Media Release, 29 September 2018, https://www.ipsos.com/sites/default/files/ct/news/documents/2018-09/report_global_news_lapresse_29_september_2018.pdf.

Ipsos, "UCP (50%, up 3) Lead NDP (40%, up 1) by 10-Points as Campaign Closes," Media Release, online: <https://www.ipsos.com/sites/default/files/ct/news/documents/2019-04/ucp-lead-ndp-10-points-campaign-closes-pr-2019-04-15-v1.pdf>.

Ipsos Consumer Panel of Canada, "Join Now," n.d., <http://www.ipsosresearch.com/household/about-us.html>.

Léger, "Canada 2015: Tracking Voting Intentions in Canada," Media Release, 17 October, 2015,

https://web.archive.org/web/20151106001705/http://leger360.com/admin/upload/publi_pdf/soen20151017.pdf.

Léger, "2021 Federal Election," 18 September 2021, Media Release, online: <https://qc125.com/proj/2021-09-18-leger.pdf>.

Léger, "Final Political Poll, Alberta Provincial Election," circa 14 April 2019, Media Release, online: <https://leger360.com/wp-content/uploads/2019/04/Report-Leger-Alberta-Final-Provincial-Polling-Results-April-15-2019.pdf>.

Léger, "Rapport: La Politique Provinciale au Québec," Media Release, 28 September, 2018, online:

http://leger360.com/admin/upload/publi_pdf/Politique%20provinciale%20%20QC-%20Pour%20publication%20le%2029%20sept%202018.pdf.

Léger, "'Report: Federal Politics," Media Release, 20 October 2019, <https://leger360.com/wp-content/uploads/2019/10/Federal-Politics-Oct-20-2019.pdf>.

Lucid, *Marketplace : 2019 Book*, [Report], 2019.

Mainstreet Research, "Canada's Choice," Media Release, 17 October, 2015, <https://www.mainstreetresearch.ca/poll/canadas-choice-2015/>.

Mainstreet Research, "Manitoba PC Government Most Likely Outcome," 6 September 2019, <https://www.mainstreetresearch.ca/poll/manitoba-pc-government-most-likely-outcome/>.

Mainstreet Research, "PEI Greens Hold Lead, Governing Liberals in Third," Media Release, April 18, 2019, <https://www.mainstreetresearch.ca/poll/pei-greens-hold-lead-governing-liberals-in-third/>.

Mainstreet Research, "These are the visualizations and maps of the Mainstreet Research Ontario Daily Tracker which has been running the entire Ontario election," Media Release, 6 June 2018, online: <https://www.mainstreetresearch.ca/ontario-daily-tracker/ontario-2018-daily-tracker-home/>.

Mainstreet Research, "PCs Ahead in Popular Vote in one of the Closest Elections Ever," Media Release, 14 May 2019, <https://www.mainstreetresearch.ca/poll/pcs-ahead-in-popular-vote-in-one-of-the-closest-elections-ever/>.

Mainstreet Research, "Quebec Sondage: 29 September 2018," Media Release, 29 September 2018, https://www.scribd.com/document/389731919/Mainstreet-Qc-Sept28-FR#download&from_embed.

Mainstreet Research, "NB Liberals Leading as Election Draws to a Close," Media Release, 23 September 2018, online: <https://www.mainstreetresearch.ca/nb-liberals-leading-as-election-draws-to-a-close/>.

Mainstreet Research, "Alberta Election 2019 Final Poll," Media Release, 15 April 2019, online: <https://www.scribd.com/document/406392999/Mainstreet-Ab-15april2019>.

Mainstreet Research, "Final 2021 Federal Election Survey," Media Release, 19 September, 2021, <https://www.mainstreetresearch.ca/poll/final-2021-federal-election-survey/>.

Mainstreet Research, "Minority Government Most Likely Scenario," Media Release, 20 October 2019, <https://www.mainstreetresearch.ca/poll/minority-government-most-likely-scenario-cpc-32-lpc-32-ndp-18-green-6/>.

Nanos Research, "Liberals win popular support-- Canadians decide how many seats they get," Media Release, 18 October, 2015, <https://web.archive.org/web/20151020132606/http://www.nanosresearch.com/library/polls/20151018%20Ballot%20TrackingE.pdf>.

Nanos Research, "Nanos Election Call," Media Release, 20 October 2019, <https://secureservercdn.net/198.71.233.47/823.910.myftpupload.com/wp-content/uploads/2019/10/2019-1445-CTV-Globe-ELXN-20191020.pdf>.

Nanos Research, no title, Media Release, 19 September 2021, <https://nanos.co/wp-content/uploads/2021/09/2021-1947-ELXN44-Nightly-Tracking-Report-Election-Call.pdf>.

Pollara Strategic Insights, "Ontario Election 2018 – Final Poll," June 3-June 5; PCs & NDP Neck-and-Neck With One Day to Go," Media Release, 6 June 2018, online: <https://www.pollara.com/onelxn-finalpoll-june3-5/>.

Pollara Strategic Insights, "Alberta 2019," Media Release, circa 14 April 2019, online: https://www.pollara.com/wp-content/uploads/2017/12/Pollara-ABelxn_Wave2-ReportF1.pdf.

Research Co., "All Tied Up as Canadians Prepare to Vote in the General Election," Media Release, 19 September, 2021, <https://researchco.ca/2021/09/19/elxn44-final/>.

Research Co., "Grits and Tories Are in Statistical Tie Ahead of Canadian Election," Media Release, 20 October 2019, https://researchco.ca/wp-content/uploads/2019/10/Release_PoliticsCAN_20Oct2019.pdf.

Research Co., "Progressive Conservatives Hold Edge in Ontario Ballot," Media Release, 6 June 2018, online: <https://researchco.ca/2018/06/06/ontario-final-2018/>.

Research Co., "Progressive Conservatives Remain Ahead of NDP in Manitoba," Media Release, 9 September 2019, online: <https://researchco.ca/2019/09/09/its-my-turn-the-circle-game-has-brought-me-here/>.

Research Co., "CAQ Edges Ahead as Quebec Voters Set to Cast Ballots," Media Release, 30 September 2018, <https://researchco.ca/2018/09/30/quebec-final-2018/>.

Research Co., "United Conservatives Extend Their Lead in Alberta," Media Release, 15 April, 2019, online: https://researchco.ca/wp-content/uploads/2019/04/Release_Alberta_15Apr2019.pdf.

Research Now, "Global Panel Sizes," n.d., http://sigs.researchnow.com/EU_Emails/UK/14Apr/Panel%20IE%20Landing%20Page/Global_Panel_Size_IE.pdf, p. 2.

c. Secondary Sources

Adams, Christopher, "Polling in Modern Times: Canadian Election Polling, 2015-2018," Paper presented to the Canadian Political Science Association, Vancouver, June 6, 2019, available at: <https://www.cpsa-acsp.ca/documents/conference/2019/615.Adams.pdf>.

Adams, Christopher, "New Modes and Methods: Parallels With Earlier Era Techniques," Conference Paper presented to the Annual Meeting of the World Association for Public Opinion Research (WAPOR), October 6, 2020.

Ansolabehere, Stephen, and Brian F. Schaffner, "Taking the Study of Political Behavior Online," *The Oxford Handbook of Polling and Survey Methods*, Lorna Rae Atkeson and R. Michael Alvarez, eds., New York: Oxford University Press, 2018, 77-96.

Ansolabehere, Stephen and Brian F. Schaffner, "Does Survey Mode Still Matter? Findings from a 2010 Multi-Mode Comparison," *Political Analysis*, 2014, Vol. 22(3), pp.285-303

Breton, Charles, *et al*, "Telephone versus Online Survey Modes for Election Studies: Comparing Canadian Public Opinion and Vote Choice in the 2015 Federal Election," *Canadian Journal of Political Science*, December, 2017, 50:4, pp. 1005-1036.

Byztek Evelyn, and Ina E. Bieber, "Does survey mode matter for studying electoral behaviour? Evidence from the 2009 German Longitudinal Election Study," *Electoral Studies*, September 2016, Vol.43, pp.41-51.

Canadian Internet Registration Authority (CIRA), *Canada's Internet Factbook 2018*, <https://cira.ca/factbook/canada%E2%80%99s-internet-factbook-2018>, accessed April 13, 2019.

Canadian Radio-television and Telecommunications Commission (CRTC), *Communications Monitoring Report: 2018*, <https://crtc.gc.ca/eng/publications/reports/policymonitoring/2018/cmr1.htm>, accessed April 13, 2019.

DeSilver, Drew and Scott Keeter, "The Challenges of Polling When Fewer People are Available to be Polled," Pew Research Center, July 21, 2015, available at: <https://www.pewresearch.org/fact-tank/2015/07/21/the-challenges-of-polling-when-fewer-people-are-available-to-be-pollled/>.

Gallup, George, and Saul Forbes Rae, *The Pulse of Democracy: The Public-Opinion Poll and How It Works*. New York: Simon and Schuster, 1940.

Gramlich, John "Q&A: Pew Research Centre's president on key issues in polling," Pew Research Centre, June 16, 2017, available at <https://www.pewresearch.org/fact-tank/2017/06/16/qa-pew-research-centers-president-on-key-issues-in-u-s-polling/>.

Keller, James, "UCP leads NDP by eight points in pre-election poll as Alberta's advance voting surges," *The Globe and Mail*, 14 April 2019, online: <https://www.theglobeandmail.com/canada/alberta/article-ucp-entered-final-weekend-before-alberta-election-with-eight-point/>.

Moore, David W., *The Super Pollsters: How They Measure and Manipulate Public Opinion in America*, New York: Four Walls Eight Windows, 1992.

Roos, Dave, "How Interactive Voice Response (IVR) Works," HowStuffWorks.com, February 20, 2008. <https://electronics.howstuffworks.com/interactive-voice-response.htm>.

Schumpeter, "Google Grows Up," *Economist*, August 1, 2020, pp. 14-17.

Steber, Colson, "River Sampling vs. Panel Sampling: What's the Difference?" Communications for Research: Market Research Blog, February 15, 2018, <https://www.cfrinc.net/cfrblog/river-sampling-vs.-panel-sampling-whats-the-difference>.