Internet polls: New and revisited challenges

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Outline

- Why talk about Internet polls?
- What is an Internet poll?
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Why talk about Internet polls?

- Proliferation of electoral or sociopolitical polls using Internet opt-in panels.
- Academic research is increasingly using Internet polls.
- ‘International’ surveys present an ‘image’ of several African and Asian countries based on Internet polls.
- The Internet is also used as a primary or complementary mode of administration by statistical agencies:
  - See the 2011 Census of Canada and the National Household Survey.

Why use the Internet for polls?

- Access – including wireless -- is growing rapidly, including in less developed countries.
- Prevalence in 2012 (Internet World Stats):
  - Canada: 83%; United States: 78%; Greenland: 90%
  - Bermuda: 88%;Argentina: 66%; Mexico: 36%
  - Iceland: 97%; France: 80%; United Kingdom: 84%
  - South Korea: 83%; Japan: 79%; Vietnam: 34%
  - Morocco: 51%; Algeria: 14%; Togo: 5%
- Conducting Internet-based surveys is very not expensive.
- Internet polls
  - have the benefits of self-administered surveys (less conformity) and
  - some of the benefits of face-to-face surveys (presentation of visual and audio material, etc.)

What is an Internet poll?

- Clearly, it is a survey conducted via a website but,
  - What is the survey frame, what is the recruitment method?

Couper (2000) describes 8 different recruitment methods:

- Non-probabilistic:
  1. Vox pop on media sites
  2. Recruitment of volunteers for 1 poll ($)
  3. Recruitment of volunteers for a “panel” ($)
- Probabilistic:
  4. Web Site exit polls
  5. Entire email lists (organizations, associations)
  6. Mixed-mode surveys with option of Internet completion
  7. Panels of Internet users recruited by another method
  8. Probabilistic samples of the entire population where Web access is provided if the household does not have it.

What is an Internet poll?

Currently

- Only method 8, where respondents are recruited by another method and where Web access is provided to households without access, allows the creation of a probabilistic sampling frame of the population.
- This method is very expensive and seldom available.
- Almost all published Internet polls dealing with current public opinion use a non-probabilistic sample of Internet users registered to a panel (method 3) ... **even though they could use method 7, which is more appropriate.**

Problems associated with representing the entire population

Problems of coverage or exclusion

- Depending on the country, a more or less significant portion of the population does not have access to the Internet. This portion has distinct characteristics: residence, education, age, **life style**.
- With at least 80% of the population covered, the impact of exclusions lessens but still exists.
- With method 8, Internet access is provided. The problem is lessened but not eliminated (people need to learn how to use the tool).

Coverage and exclusion

Bigot, Croutte and Recours (2010)

- Differences between Internet users and non-users in France:
- Unadjusted: significant differences for 71 of 191 variables (34%) related to
  - All sociodemographic variables except gender,
  - Household furnishings, but also
  - Opinions on customs
- After adjustment: differences in 12% of variables including
  - Household furnishings
  - Opinions on customs
  - Housing
  - Cultural practices

Constructing the survey frame

- Shift from a household frame to an individual frame (including telephone frames with cell phone numbers).
- One would have thought...
  - That companies would try to construct an unbiased ‘frame’ of the population’s email addresses;
  - That pollsters would try to construct a survey frame from telephone solicitations. There would mostly remain coverage and non-response biases.
- This has not happened.
  - Methods of recruitment for panels vary from company to company, and do not reach all Internet users.
  - For most panels, respondents can register by going to the pollster’s site.

Constructing the sampling frame

Recruitment

- Done differently depending on the company (Baker et al., AAPOR task force, 2013).
  - Telephone or mail solicitation
  - River sampling
  - Solicitation on social media
  - Solicitation on various websites:
    - The variety of websites used is very important.
- Some of the solicitation methods are probabilistic (recruitment by telephone poll)
  - Some pollsters use only this method.
  - Some combine this method with website recruitment and recruitment on the company's website. It is possible to limit the sampling frame to those recruited by telephone poll, but it seems that it is seldom used.

Constructing the sampling frame

Confidentiality

- What respondent information must be collected?
  - Some pollsters collect very detailed information: date of birth, address, telephone number, consumer habits, values, etc., most likely to prevent multiple registrations, to better adjust, and to be able to reach specific consumer groups. Additional bias?
- Do respondents have as much trust in the confidentiality of their answers to an Internet poll? How can they be reassured? (Lozar Manfreda et al., 2008)

Constructing the initial sample

- One would have thought...
  - That the companies would proceed as with probabilistic surveys, that is
    - Select a “finite” probability sample from the “imperfect” frame”;
    - Use every means to contact members of the sample and convince them to cooperate.
- Instead,
  - A great many invitations are sent out to a sample of panel members—and even to others—
  - Quotas determine the end of data collection for the different groups.

Response / participation rate

- Lozar Manfreda et al., (2008) carried out a meta-analysis of 45 comparisons between the Internet mode and other modes.
- They found that response rates to Internet polls are on average 11% (6%-15%) lower than with other methods.
- For **opt-in panel polls**, rates can be as low as less than 1%, which makes the issue of representativeness even worse and leads companies to not renew their panels.
- Response rates similar to 'classical' self-administered surveys are possible if collection is closely monitored, with reminders, etc. (see Dillman, 2000).

The sample and the response rate

Impact on how opt-in polls are managed

- Increase in the number of requests received
  - Increase in burden for respondents, and even greater for certain ‘rare’ respondents,
    - Who end up no longer responding,
    - Which leads to an increase in the number of requests,
    - Which drives the response rate down.
  - Ultimately: samples of professional respondents who have the time and are attracted by the possibilities of compensation or by the survey topic. It is estimated that 3% of Internet users complete more than 80% of Internet polls (Rivers, Yougov).
  - **The problems combine to create biased samples.**

Blasius and Brandt (2010)

- Compare a representative panel sample of persons, aged 18-49, to face-to-face ‘standard’ samples (GSS and German micro-census)
  - They find that it is impossible to have enough respondents aged 50 and over.
  - They succeed in making a sample of persons, aged 18-49, representative of the population on a proportional basis by age, sex and education.
- Comparisons (including after weighting) with the 2 other samples show that, in the Internet poll, there are:
  - More single or divorced respondents and more persons without children;
  - Fewer people who attend church;
  - Greater value attached to laisser faire, wealth, self-actualization.

Stephenson and Crête, 2011

- Compare two polls conducted by Léger Marketing in 2007 using the same questionnaire, one by Web panel, the other by telephone.
- 36 of 52 variables have significantly different distributions even after weighting.
- In the Web panel, fewer regular churchgoers (same as Blasius and Brandt, 2010), more educated respondents, more likely to think that, in Quebec, we have gone too far to accommodate cultural minorities (82% vs. 76%).

Malhotra & Krosnick, 2007

- Compare the 2000 and 2004 American National Election Study with opt-in Internet panels(U.S.A.).
- They show that, even after weighting, the Internet polls contain
  - Fewer Blacks, fewer less-educated persons and almost twice as many persons with an average education;
  - In 2004, more people who voted, more Bush supporters (than Kerry), more persons in support of the war in Iraq, more persons interested in politics;
  - In 2000, almost the same differences as in 2004; almost twice as many “strong Republicans”;
  - Relations between the variables predicting the vote, and the vote itself, were significantly different in virtually all cases.

Pasek and Krosnick (2010)

- Compare an RDD-type telephone poll and an Internet opt-in panel on intent to take part in the 2010 Census and actual participation. The Internet opt-in panel ...
  - Had poorer demographic distribution;
  - Differed on average by 13 points and by as much as 30 points in the proportion of modal answers;
  - Presented significant and non-negligible differences in predicting participation in the Census, as well as in the evolution over time of opinions and in the relations between variables.

Durand, 2012, 2013

- Analysis of samples from two companies:
  - Under-representation of persons under 35.
  - Questionable profile of linguistic minorities (e.g., high proportion of non-Francophones living outside Montréal).
  - Unrealistic political profile of certain groups:
    - Excessively high proportion of PQ voters among respondents aged 18–24.
  - Sample difficult to adjust (improbable relation between previous vote – current vote).
- Quality of Internet election poll estimates:
  - Canada 2011: under-estimation of Conservatives
  - Alberta 2012: underestimation of the Wild Rose Party.
  - Quebec 2012: over-estimation of CAQ
  - BC 2013: over-estimation of NDP.

Can the problem(s) be fixed?

Several methods (AAPOR 2013)

- Propensity score weighting
- Weighting using lifestyle variables (ex: CROP 3SC)
- Sample matching using supplementary external variables.

Loosveldt and Sonck (2008)

- Compare an Internet opt-in panel and a face-to-face survey in Belgium (Flanders)
- adjust using a propensity score based on Internet access (like Bigot et al.).
  - 18% of persons with less than 10 years of schooling, or aged 60 and older, have access to the Internet, compared with over 80% of persons who are employed, have a university education, are aged 30 or under.
- Propensity score weighting...
  - Allows the adjustment for differences in proportion of urban dwellers and employed persons.
  - But differences remain significant for: job satisfaction (Internet -), interest in politics (+), attitudes towards immigrants (more negative among Internet panel respondents).

Tourangeau et al. 2013 in Baker (2013)

- Summarize 8 studies that tried to reduce biases of opt-in panels using weighting and adjustment methods.
- They conclude that…
  - Adjustments correct only a portion of biases, at most 60%;
  - Adjustments sometimes increase the bias of unadjusted estimates by a factor of more than 2;
  - Biases can be significant after adjustment, shifting estimates by as much as 20% or more.
  - There are significant differences depending on the variables, with adjustments sometimes having eliminated the bias and sometimes increased it substantially.

In short, concerning classical challenges

- Frequent differences between Internet opt-in panels and probabilistic face-to-face or telephone methods.
  - Inconsistent, non-systematic, more substantial differences than between randomly selected Internet users and non-users.
  - A consistent difference: fewer regular churchgoers, more negative attitudes toward diversity.
- When quotas are applied successfully, similar problems are found to those of other quota-based samples: adherence to quotas does not ensure adequate socio-political representation.
- Adjustments sometimes reduce but do not eliminate biases due to coverage, selection and non-response inherent in opt-in panels.

The questions and the questionnaire : new challenges

- The questionnaire is an instrument of measurement and of social interaction.
  - In an interview, the interviewer can “help” the respondent if necessary, explain.
  - With a paper questionnaire, the respondent sees the entire instrument, the questions before and after, how many there are, and their format.
  - With an Internet poll, ‘pages’ are displayed one by one. The respondent does not see what comes before or after. As a result, the questionnaire needs to be adapted.

Challenges applicable to all Internet polls

- The questions “disappear” after being answered, which makes the respondent’s task more difficult. This requires...
  - Indicating the progress of the questionnaire;
  - Grouping the variables in tabular format when the choice of response is the same for a series of statements
    - See satisficing problem;
  - Inserting transition phrases when questions are skipped to allow the respondent to better situate himself;
  - Allowing non-response except when the answer is essential and the question is not sensitive in order to avoid ‘random’ responses;
  - Making it possible to go back in the questionnaire;
- Some of these recommendations are implemented but not always.

Challenges applicable to all Internet polls

- Some polls prevent non-response to opinion questions.
  - Problem of incomplete questionnaires and reliability of answers.
- Some questionnaires are much too long.
  - Problems related to answering too quickly.
    - Most companies reject questionnaires answered too quickly.
- Some questions require considerable thought or consultation of external resources.
  - Problem of reliability of the answers.

Current state and the future

Current state and the future

Coverage

- Currently:
  - Internet is becoming more and more accessible.
  - There are expensive ways to reach almost the entire population by providing the Internet to those without it. Not the ideal solution.
- In the future:
  - Technological advances in Internet access everywhere and at lower cost.
  - Internet address to become an address unique to each individual like a mailing address and SIN?

Current state and the future

Sampling frame

- Currently:
  - Development of various non-probability, more diverse recruitment methods.
  - Development of probability methods (telephone, face to face and mail recruitment).
- In the future:
  - Progress on creating an address list for the entire population, similar to RDD process for the telephone:
    - Linked to coverage and technological advances.
  - Development of existing frames to include a larger portion of the population via telephone recruitment.
  - Use the full potential of the existence of frames allowing panels and use the information available in these frames.

Current state and the future

The constitution of the initial sample

- Currently:
  - We seem to have gone back to a time of open samples completed using quotas, at least for most if not all Internet opt-in panels. This has an impact on participation.
- In the future:
  - Return to known reliable methods: finite samples and processes to maximize participation.

Current state and the future

Participation, response rate

- Currently:
  - Response rate is not considered relevant in quota-type samples.
    - Monetary incentives.
- In the future:
  - Reduce the number of requests to panel members;
    - Improve methods to maximise the response rates: Reminders with varying messages (Dillman, 2000).

Current state and the future

Weighting, adjustments

- Currently:
  - A great deal of research based on pairing, probability of inclusion (propensity score), use of lifestyle variables.
  - Generally disappointing results.
- In the future:
  - **Ask the question:** Is there one way or are there more ways to ensure that a volunteer sample is representative of the population in all circumstances? Or in certain circumstances? Or to achieve predictable biases?
  - Focus on adjustment of probability samples of users?
  - Focus on the constitution of probability samples?

Current state and the future

Questions, questionnaire

- Currently:
  - Great deal of research conducted on
    - Questions
    - Lists (table format)
    - Satisficing
    - Non-response (allowed or not)
    - Indications to respondent (on progress, among other things).
- In the future:
  - Use the full potential offered by the Internet mode, including using open-ended questions, which have become much easier to process.
  - Find technical means to allow the respondent to answer as though it was in paper format or to have a view of the whole questionnaire.
  - Set guidelines for filters, maximum length of a list and of a questionnaire.

Conclusion

- Internet polls are the future but... this is now.
- Very interesting potential, provided the following fundamental problems can be resolved:
  - In the absence of a reliable sampling frame, the costs of a poll with a probability sample are prohibitive;
  - The way samples are managed leads to unacceptable response rates;
  - Efforts to adjust samples after the fact have not produced the desired results;
  - The questionnaire is not yet a global, user-friendly instrument.
- Research must focus on constructing sampling frames.

References

- Baker et coll. (2013). Report of the AAPOR task force on non-probability sampling. http://www.aapor.org/AM/Template.cfm?Section=Reports1&Template=/CM/ContentDisplay.cfm&ContentID=6055, 128 p.
- Bigot, R, P. Croutte et F. Recours (2010). Enquêtes en ligne : peut-on extrapoler les comportements et les opinions des internautes à la population générale? Centre de recherche pour l'étude et l'observation des conditions de vie (CREDOC), texte manuscrit, 63 p.
- Blasius et Brandt (2010) Representativeness in Online Surveys through stratified samples, BMS, 107, p. 5-21.
- Dillman, D. (2000). Mail and Internet Surveys, the Tailored Design Method, New York: Wiley and Sons, 463 p.
- Durand, C. (2013). Why do Polls go Wrong Sometimes? The Canadian Case. Presented at UBC, September 23 2013.
- Durand, C. (2013). How do Internet Polls Fare in Predicting Election Results? Presented at the World Social Science Forum, Montréal, October 15 2013.
- Loosveldt et Sonck (2008) An evaluation of the weighting procedures for an online access panel survey, Survey Research Methods, 2 (2), 93-105.
- Lozar Manfreda, K., Bosnjak, M., Berzelak, J. Haas, I. et V. Vehovar (2008). Web surveys versus other survey modes. A meta-analysis comparing response rates. International Journal of Market Research, 50 (1), 79-104.
- Malhotra et Krosnick (2007)Malhotra, N et J. A. Krosnick (2007). The Effect of Survey Mode and Sampling on Inferences about Political Attitudes and Behavior: Comparing the 2000 and 2004 ANES to Internet Surveys with Nonprobability Samples Political Analysis, 15(3), 286-323.
- Pasek et Krosnik (2010) Measuring Intention to Participate and Participation in the 2010 Census and their Correlates and Trends: Comparison of RDD Telephone and Non-Probability Internet Survey Data, Statistical Research Division, US Census Bureau, Washington, Study Series Survey Methodology #2010-15, 71 pages
- Stephenson and Crête (2011) Studying Political Behavior: A Comparison of Internet and Telephone Surveys, International Journal of Public Opinion Research, 23 (1), 24-49.

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