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SAMPLING and SURVEY SAMPLING: Polling – *Scientific side of opinion polls ...*

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Scientific side of opinion polls doesn't stand up

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SOME YEARS ago, a young man uncertain about his future consulted a scientist he admired greatly. "Become a public-opinion pollster," advised Albert Einstein. "There you will never be unemployed. We know, after all, that people are ruled by being told tall stories – so the rulers must constantly test and see what they can get away with."

Polling is a growth industry today as Einstein foresaw. Part of its strength is its scientific aspect. People are impressed that polling organizations interview hundreds of people and analyze the results quantitatively and scientifically.

The truth is that polling falls short of an "exact science." Just about every facet of polling has a subjective aspect, even its main feature – sampling.

The scientific basis of polling is that a randomly selected sample of several hundred respondents can mirror the country as a whole. The larger the sample, the better the mirror. Using laws from statistics, a pollster may assert that his poll is "accurate 19 times in 20 within a margin of error of four percentage points." With a statement of this kind, the pollster does not actually claim that his particular poll is valid. He can never know for sure. He is only saying that, if repeated polls such as his own were conducted, only one in 20 would produce results that are wrong by more than four percentage points.

Not random samples

The kind of scientific reasoning used by pollsters might make sense if their polling samples were truly random, but they are not. Many potential interviewees are rarely home and cannot be reached. Others do not speak the language or are too busy, tired, suspicious, ill or inebriated to co-operate.

Another potential source of bias is the format of the interview. Some experimental evidence shows that face-to-face interviews elicit less hostile and less racist feeling than more anonymous formats.

The order of questions in a questionnaire may affect results. Let's imagine for a moment two polls on free trade with the United States. Both polls conclude by asking respondents whether they favour the free-trade pact, but each begins with a completely different set of questions.

Poll A starts by asking respondents if they believe Canadians have been sufficiently consulted on the issue, if Americans can be trusted, if Prime Minister Brian Mulroney is sincere and if the respondent has ever had personal economic concerns.

Poll B begins on a more positive note, asking respondents whether international trade can contribute to international understanding, whether the United States is Canada's most important friend, whether the respondent is pleased with Canada's high rate of economic growth and pleased with the success of major Canadian companies in the U.S. economy.

Poll B would probably elicit more favourable attitudes toward free trade because it arouses confident and optimisic feelings, while Poll A provokes anxiety and mistrust.

There is no such thing as an unbiased poll. Almost every poll requires introductory questions in order to prompt respondents to begin thinking about the issue upon which they will be questioned. Respondents are influenced by the phrasing of the introductory questions. They are also affected by how the main survey question is phrased. Its precise wording is vital because co-operative respondents will provide an opinion even when they do not really have one. A generation ago, an experimental election poll produced real results even though the election, the candidates and the offices they allegedly sought were all fictitious.

When respondents do not possess strong convictions, they are susceptible to cues in the wording of the question. Imagine three polls on the issue of Sunday closing.

Pollster X says, "There has been a lot of concern lately about whether it is fair that all stores are treated alike, that some stores are allowed to be open on Sunday while others are not. Do you think this situation is completely fair, somewhat fair, somewhat unfair or completely unfair?"

Pollster Y says, "Some corporations want the law changed to let them operate their large stores on Sundays. However, some people, including many employees, say that they really need one regular day to be with their family or friends or just relax after a week at work. In your opinion, should the government (a) change the law right away, as some corporations want, (b) consider changing the law at a later date, (c) consult people more before taking any action, or (d) leave the current law as it is?"

Pollster Z says, "Some people want the government to allow all stores to be open on Sunday because this would be good for the economy. Other people say that our present law has been good for society, letting people have time away from work to spend with friends and family or time to relax. Still other people say that the government needs to find a compromise acceptable to reasonable people on both sides of the issue. In your opinion, should the government (a) change the law today, (b) leave the present law completely alone, or (c) try to find a compromise that would be acceptable to both sides?"

Pollster X would probably find that a majority does not believe the current law is completely fair. Pollster Y would probably find that a majority does not want an immediate change. Pollster Z would probably find a majority supporting an attempt to find a compromise.

Pollsters can affect history by the way they word questions. During the Watergate period, the big U.S. pollsters repeatedly asked respondents if they wanted Richard Nixon "impeached and removed from office." This was akin to asking people if they wanted an accused to be tried as well as hanged. For almost two years, pollsters reported that most Americans opposed Mr. Nixon's being "impeached and removed from office," and so Congress took little action. In fact, most Americans had wanted the President impeached or tried all along, but they wanted him forced from the presidency only if he were actually found guilty.

Surveys brought action

Congressmen started to take action once better surveys conducted by less well-known pollsters came to their attention. Only 30 per cent wanted Mr. Nixon impeached and removed from office. Relatively unknown Democratic pollster Pat Caddell showed that this figure doubled when respondents were asked if the President should be tried and, if found guilty, removed from office. Then major pollster Louis Harris was found to have clandestine links with the Nixon White House, and he was accused of having rigged his impeachment question.

In Canada, there have been suspicions that polls have been conducted other than just to provide information. A poll in 1980 compared favourably Mr. Mulroney's popularity with that of Joe Clark. It gave Mr. Clark no

(*continued overleaf*)

comfort. A recent poll comparing Jean Chrétien and federal Liberal leader John Turner could not give Mr. Turner much comfort either.

The media often use polls as referendums, but media polls fill this role poorly. Public perceptions are too complex and transient for any single survey to have the final word. No single pollster should ever be fully trusted because of the problem of subjectivity. Furthermore, to be truly useful a poll needs far more detailed analysis than what is normally provided by newspapers and television.

Good questionnaires contain enough detail to show how respondents are affected by arguments, symbols and spokesmen on both sides of an issue. In the same way, good analysis compares the opinions of different types of respondents – young versus old, political versus apolitical, and so on.

Comparing the opinions of different groups of respondents can be tricky and requires careful study. A pollster may find a difference in male and female responses, but gender may not account for that difference. Women on average are less educated than men. Thus, a difference in education may be the reason for the difference. If gender is truly at work, men and women with the same level of education should still exhibit a difference of opinion.

The attention given to surveys by the media has been a short-term boon for commercial and academic pollsters. For media attention to avoid becoming the bane of polling, journalists must demand greater objectivity in the design of questionnaires and provide their audience with a more detailed discussion of the results.

1. Referring to the fourth paragraph overleaf on page HL80.1 of the article EM8703 reprinted in this Statistical Highlight #80, outline the 'laws from statistics' that allow a pollster to .... *assert that his poll is "accurate 19 times in 20 within a margin of error of four percentage points."*
   - Explain carefully but concisely the sense in which the word *accurate* is used in this statement.
     - What *mis*interpretation of the word *accurate* can readily be made by statistically uninformed readers of the statement?
   - Find the approximate sample size that corresponds to this margin of error of four percentage points in a poll; set out your calculations and assumption(s) clearly.
   - Explain briefly whether it would be correct to replace the phrase .... *four percentage points* by .... *four percent* in this context.

2. Discuss briefly the *statistical* isses(s) involved in the statement in the fourth paragraph overleaf on page HL80.1 of the article EM8703 reprinted in this Statistical Highlight #80: *He can never know for sure.*

3. Assess critically the description of an approximate 95% confidence interval given overleaf on page HL80.1 at the end of the fourth paragraph of this Statistical Highlight #80: *He is only saying that, if repeated polls such as his own were conducted, only one in 20 would produce results that are wrong by more than four percentage points.*
   - What is the primary focus of the word *repeated* in this statement? Explain briefly.

4. Explain briefly which of the six categories of *error* are involved in the discussion in the fifth paragraph overleaf on page HL80.1: *The kind of scientific reasoning .... ill or inebriated to co-operate.*
   - Explain briefly whether these error(s) should be referred to as *bias* in the following paragraph.

5. List the components of the *measuring process* used in the type of poll that is the primary concern of Professor Winn's article.
   - Starting at the bottom of the left-hand column overleaf on page HL80.1 and continuing for much of the rest of the article, there is extensive discussion of the effects of *question ordering and wording* on limitations on poll Answers; identify the *category* of the error which imposes these limitations.
     - Which *component(s)* of the measuring process are relevant to this discussion? Explain briefly.

6. Use the language of *response models* to explain the main *statistical* point that Professor Winn is making in the paragraph which begins in the lower half of the middle column above: *Comparing the opinions ..... still exhibit a difference of opinion.*

7. Outline the *statistical* issues raised by Professor Winn in the last paragraph above: *The attention given to surveys ..... a more detailed discussion of the results.*

The article EM8703 in this Statistical Highlight #80 is also used in Figure 8.13b in the STAT 220 Course Materials and in Figure 2.6b of the STAT 332 Course materials.