FUNDAMENTALS OF POLLING

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Abstract. Conceptos básicos de los sondeos de opinión. En este manual se ofrece una ojeada simplificada en algunos de los fundamentos metodológicos del survey. Proporciona definiciones, ejemplos, y las explicaciones que sirven a estudiantes interesados al campo de la investigación de la opinión pública.

This tutorial is intended to offer a simplified glimpse into some of the fundamentals of public opinion polling. Designed for the novice, provides definitions, examples, and explanations that serve to introduce interested students to the field of public opinion research.

What is a public opinion poll?
A poll is a type of survey or inquiry into public opinion conducted by interviewing a random sample of people.

What's a random sample?
A random sample is the result of a process whereby a selection of participants is made from a larger population and each subject is chosen entirely by chance.

When I receive some survey calls, they're trying to sell me something. Is this a public opinion poll?
No. Telemarketing calls are different from public opinion polls. A telemarketer's objective is to sell you something, rather than learn of your opinions-although sometimes he or she will disguise the motive with a few questions first. The goal of the public opinion pollster is to measure the views of the targeted sample in the population.

Why haven't I been asked to participate in a national opinion poll?

The US Census tells us there are more than 200 million American adults and most polls generally include about 1,000 respondents. So, let's say 2,500 national polls are completed each year, that's only 2,500,000 people. Assuming no one is interviewed more than once, the odds of being called in any given year are just over 1 in 100.

Why should I participate in an opinion poll?

Public policy decisions are being made all the time. There are all sorts of interest groups who are making their positions known to those decision-makers. The public opinion poll provides an opportunity for the voices of the common man and woman to be heard. So, why wouldn't you want your views heard-it's your privilege in a democratic society!

Fundamentals of Polling-Total Survey Error

 What is meant by the margin of error?

What is sampling error?

What about my brother who's in the army stationed in Europe--can he be interviewed?

What is measurement error?

What happens when people can't be reached? What about screening calls?

What happens when the final sample doesn't look like the general public--For example, what if three quarters of your respondents are over fifty?

What is meant by the margin of error?

Most surveys report margin of error in a manner such as: "the results of this survey are accurate at the 95% confidence level plus or minus 3 percentage points." That

is the error that can result from the process of selecting the sample. It suggests what the upper and lower bounds of the results are. Sampling error is the only error that can be quantified, but there are many other errors to which surveys are susceptible. Emphasis on the sampling error does little to address the wide range of other opportunities for something to go wrong.

Total Survey Error includes Sampling Error and three other types of errors that you should be aware of when interpreting poll results: Coverage Error, Measurement Error, and Non-Response Error.

What is sampling error?

Sampling Error is the calculated statistical imprecision due to interviewing a random sample instead of the entire population. The margin of error provides an estimate of how much the results of the sample may differ due to chance when compared to what would have been found if the entire population was interviewed.

Coverage Error affects those who only use a cell phone, since Random Digit Dialing (RDD) samples do not include cell phone exchanges. Recently this problem has grown particularly in trying to reach young people.

What is measurement error?

Measurement Error is error or bias that occurs when surveys do not survey what they intended to measure. This type of error results from flaws in the instrument, question wording, question order, interviewer error, timing, question response options, etc. This is perhaps the most common and most problematic collection of errors faced by the polling industry.

What happens when people can't be reached? What about screening calls?

Non-response Error results from not being able to interview people who would be eligible to take the survey. Many households now have answering machines and

caller ID that prevent easy contact; other people simply do not want to respond to calls sometimes because the endless stream of telemarketing appeals make them wary of answering. Non-response bias is the difference in responses of those people who complete the survey vs. those who refuse to for any reason. While the error itself cannot be calculated, response rates can be calculated and there are countless ways to do so. The American Association for Public Opinion Research (AAPOR web site) provides recommended procedures for calculating response rates along with helpful tools and related definitions to assist interested researchers.

What happens when the final sample doesn't look like the general public--For example, what if three quarters of your respondents are over fifty?

Survey firms apply a technique called weighting to adjust the poll results to account for possible sample biases caused by specific groups of individuals not responding. The weighting uses known estimates of the total population provided by the Census to adjust the final results.

It's not uncommon to weight data by age, gender, education, race, etc. in order to achieve the correct demographic proportions.

Understanding the Numbers Presented in Tables
There are some tables that are straightforward. The Roper Center's iPOLL database offers the top-line results to survey questions--toplines are how the full aggregated sample answered the questions.

POLL example:

You might say that the public is evenly split on judging the integrity of pollsters, according to this November 2002 telephone conducted by Harris Interactive and obtained from the Roper Center at the University of Connecticut.

Harris Poll [November, 2002]

Would you generally trust each of the following types of people to tell the truth, or not? ...

Pollsters

44%	Would trust
43%	Would not
13%	Not sure/Refused

Methodology: Conducted by Harris Interactive, November 14-November 18, 2002 and based on telephone interviews with a national adult sample of 1,010. [USHARRIS.112702.R1O]

Data provided by The Roper Center for Public Opinion Research, University of Connecticut.

Crosstabulation tables can be more complicated. Crosstabs offer a look at how different groups within the sample answered the question. In other words, the table below can be summarized in this manner:

A New York Times poll in June 2000 found that among whites, 81% thought race relations in their community were "good", while 72% of black respondents found this to be the case. Conversely, 14% of whites and 22% of blacks identified their

community race relations as "bad". Among those who identified with the "other" race category, 79% responded good and 18% bad to the question of race relations in their community. There were too few Asians in the sample to be able to statistically rely upon the percentages. These data were provided by the Roper Center at the University of Connecticut.

Aggregate

A group of persons (or any other units of analysis) that have some characteristics in common without necessarily having any other connection to each other. For example, Teachers in the U.S. , Internet-users, or Voters.

Bivariate Analysis

The analysis of the relationship between an independent and dependent variable. (e.g. a cross tabulation showing presidential approval for men and women separately).

Census

A census is often similar to a survey, with the difference that the census collects data from all members of the population while the survey is limited to a sample.

Codebook

A list of the variables and how they have been coded in a survey. Every polling organization has its own methods for coding, so every codebook will look a little different.

Coding (Responses)

The process of translating data (respondents' answers to questions) into a format that can be read and manipulated by a computer and later analyzed by the survey researcher. For example, a female respondent answers the following question:

Are you: a) Democrat b) Republican c) Independent d) Don't Know

Continuous or cardinal Variable

A continuous variable is a variable that can be expressed by an infinite number of measures. For survey purposes, they are usually measured on an interval or ratio scale. (i.e. Time, speed, weight - since these may be broken down into an infinite number of smaller parts.)

Cross-Tabulation

A table which shows the influence of an independent variable (located in the column) on a dependent variable (located in the row.)(e.g. a graph showing how income influences the likelihood of voting for a certain candidate).

Data Mining

This is a process where the researcher searches or "digs" through data-bases for information that may validate his/her own work or inspire ideas for new projects.

Dataset

The individual-level results of a survey, conceptualized as a table or "matrix" where the rows contain values for each individuals' coded responses. For example, a "1" on presidential approval might mean "approve" while a "2" might mean "disapprove." "Don't know" is often coded as "8" or "9". Datasets may be used for secondary analysis. The raw data. Each respondents responses to a question laid out in a table like form.

Date of Source Document

This is a reference tool used by Roper Center staff and is not necessarily the date of a survey's first public release. When no release date exists, the last day of the interviewing period is used.

Dichotomous Question

A type of (close-ended) question which has two answer choices. e.g. Are you: a) Female b) Male

Discrete Variable

A discrete (also known as categorical or nominal) variable is one that has two or more categories with no intrinsic order. For example, Sex, Hair color, and Favorite radio station. You can assign these variables to a category, but they have no order from highest to lowest. Therefore, you can't find "the average" of hair color. (See ordinal variable)

Feeling Thermometer

A type of ratings scale where respondents are asked to gauge their attitudes about a particular topic or person. For example, ratings between 50 degrees and 100 degrees mean that you feel favorable and warm toward a person. Ratings between 0 degrees and 50 degrees mean that you don't feel favorable toward the person. You would rate the person at the 50 degree mark if you don't feel particularly warm or cold toward the person. The National Election Studies (NES) has often used this rating scale for questions about presidential candidates.

Filter Question

A type of question used on surveys in order to determine which subsequent (if any) questions to ask.

FOCUS GROUP

A small group selected from a wider population that is led by a moderator in an open discussion about the research topic. While there are many different functions of a focus group, there are typically three reasons why a focus group is used in qualitative research. The information gathered from the group interaction is used:

1) to gain insights that will help generate data for the development of a survey 2) as a supplementary source in a study along with other methods of data-collecting; used in either a preliminary or follow-up stage of the research 3) in combination with other methods of interviewing for the research project. Focus groups are often used in the areas of market research and political opinion analysis.

Interval Variable

An interval variable is similar to an ordinal variable except that the intervals between the values of the categories are equidistant, or equally spaced. However, there is no meaningful "zero" point. For example, Age.

Interview

A data collection encounter in which one person (an interviewer) asks questions of another (a respondent). Interviews may be conducted face-to-face or by telephone.

Interview Method/Mode

An indication of the method or mode of interviewing: mail, telephone, or in-person.

Interviewer Bias

Interviewers can intentionally or unintentionally prompt respondents to reply in a particular manner. Characteristics like sex, race, age, physical appearance and behavior can have subtle or sometimes, obvious affects on respondents during the interview process. Some respondents may answer in a manner that they believe would please the interviewer. It is for this reason that survey firms seeking to interview special samples of the population will carefully select interviewers with like characteristics to conduct the survey.

Likert Scale

A widely used response format that allows for measuring typically qualitative attitudes into quantitative measures. For example, response options may include: "strongly agree", "agree", "disagree", "strongly disagree".

Mean

The average. To calculate this, simply add up the values for each case and divide by the total number of cases. (e.g. If you want to find out the average number of hours you spend on the computer each week, simply add up your daily hours and divide them by seven.)

Median

The middle score or measurement in a set of ranked scores or measurements.

Mode

1) The most common score or measure in a set of scores or measures;
2) A method of interviewing respondents.

Multi-stage (Cluster) Sampling

A sampling method using more than one stage in the process of gathering the sample. (e.g. You want to interview Missouri voters about their preferences in an upcoming election. However, you have limited resources in your ability to contact them. Therefore, you randomly select 30 voting districts in the state. From there, you randomly select towns. Within those towns, you randomly select neighborhoods. From the neighborhoods, you randomly select streets. and so on.)

Multivariate Analysis

The analysis of more than two variables simultaneously, for the purpose of determining the relationship between and/or among them. For example an issue by age and by sex.

Non-probability Sampling

A type of sampling where samples are drawn arbitrarily, without regard to scientific methods; and, therefore, should not be used to make statistical inferences about the target population. (i.e. "person on the street" samples)

Ordinal Variable

An ordinal variable is similar to a discrete variable; however, the difference is that there is a clear ordering of the variables from low to high. For example, "Education." There is an order as well as a value from low to high when it comes to measuring years of education. We can code the variable as follows: "1"=Less than High School Graduate; "2"=H.S. Grad/Some College; "3" =College Graduate; "4" =Post Graduate or more

We know that there is an order from low to high in this case, but the size of the difference between each of the categories is not necessarily equidistant from one to the next. (If the difference between each of the categories were equally spaced, the variable would be an interval variable.)

Outlier Effect

An extreme value of a variable in a dataset. This extreme value can distort the results of your survey if you're dependant solely on the mean statistic for analysis. i.e. Here is a list of test scores: 90, 87, 99, 95, 85, 43, 91. The score 43 is an outlier and will distort the mean (84, in this case) would give a better sense of the overall scores.

Population

The theoretical population from which the sample was drawn. For example, adults living in the contiguous U.S.; Some studies are based on sample sub-sets (such as national samples of women or African Americans).

Population Parameter

A characteristic of the target population described by a statistic. For example, if your target population is runners in the New York City Marathon, the average finishing time would be a population parameter. You calculate every runners' finishing time to get the parameter. (Not to be confused with sample statistic)

Population Size

In iPOLL, this is the total unweighted count of all completed interviews, also referred to as the sample size.

Probability Sampling

A type of sampling which ensures that each member of the sampling frame has an equal, known chance of being selected. This kind of sampling allows researchers to make statistical inferences about the population at large. (see Non-probability Sampling)

Random Digit Dialing

A technique used to obtain a representative sample by using a device that randomly generates telephone numbers in order to contact eligible participants.

Ratio Variable

A ratio variable has all the properties of an interval variable. In addition, it has a zero point. For example, Income.

Reliability

The quality of measurement that suggest that the same data would have been collected each time in repeated observations of the same phenomenon.

The response categories and percentages of the sample answering each way. Generally, the percentages shown are weighted if the data were weighted better to reflect the population. Any special question-related information clarifying such things as multiple responses, partial responses, and the like will appear after the responses. These notes relate only to specific questions as opposed to the entire study and are referred to as question-level notes.

Sample

This is the total number of eligible participants randomly selected from the sampling frame of the total population in the survey. The desired sample size is determined by the necessary statistical quality for the survey results. [Note: The total sample size will inevitably be greater than the actual number of completed interviews due to varying response rates and other sources of survey error.]

Sampling

A method of selecting elements (or units) from the target population in a way that is representative. Types of sampling include: Simple random sampling, stratified sampling, systematic sampling, and multi-stage cluster sampling.

Sample Error

One type of inaccuracy caused by making inferences about the target population based on the sample. The sampling error is an estimate of how a sample statistic is expected to differ from the population parameter.

Sample Frame

This is the list of eligible participants included in the target population. The sample is chosen from the sampling frame.

Sample Size

This is the total unweighted count of all completed interviews, also referred to in POLL as the population size.

Sample Statistic

A statistic which describes the sample. (e.g. If you want to do a survey of New York City Marathon runners, including their finishing times, the average finishing time of the those surveyed would be an example of a sample statistic. Not to be confused with population parameter which would calculate the average finishing time of all the runners, not just a sample of them.)

Secondary Data

This term refers to materials and information that has previously been documented. For example, a poll, a press release, a business report.

Simple Random Sample (SRS)

The most common sampling method where each element in the population has an equal chance of being selected.

Source Document

The document from which survey information was gathered.

Standard Deviation

A statistic that shows the dispersion of scores in a distribution of scores. It is a measure of the average amount the scores in a distribution deviate from the mean.

The more widely spread out the scores are, the larger the standard deviation will be.

Standard Error (of the Mean)

A statistic indicating how much the mean score of a single sample is likely to differ from the mean score of the population. It answers the question, "How good an estimate of the population mean is the sample mean?" (Not to be confused with sampling error)

Statistic

A number that describes some characteristic of a variable. (e.g. the mean, the standard deviation)

Stratified Sampling

A method of sampling where groups that might not otherwise be equally represented are first divided proportionately into categories ("strata"); then, a sample is randomly selected from each of these categories. (e.g. If you wanted to do a study on hospitals, you'd separate them by size—small, medium-sized, and large hospitals. From there, you would draw samples from each category so that they'd all be equally represented.

Subpopulation

In cases where responses are not based on the entire sample, a description of the portion of the sample whose responses are being reported appears here (e.g. women, or those who favor a given policy).

Systematic Sampling

A method of sampling where units are selected from the sampling frame by every "nth" unit. (e.g. You have a directory of 100,000 names and you want a sample of 1,000 names. Divide 100,000 by 1,000 to get 100. You will select every 100th

name from the directory. Randomly select a number between 1 and 100, say 42, and select every 42nd name in groups of 100 (42, 142, 242, 342, 442.) to complete your sample.

Triangulation

Using more than one method to find meaning in a problem. i.e. If you want to interpret the President's Approval Rating, you could look at poll results, results of focus groups, and news stories of current events.

Trends

This term typically refers to the long-term patterns over time relating to topics of interest in public opinion. For example, the GSS is one of the nation's longest running surveys of social, cultural and political indicators.

Univariate Analysis

The analysis of a single variable, for purposes of description (e.g., averages, or the proportion of cases falling into a given category among the entire sample).

Variable

In survey research, a variable is an example of what is being measured. (i.e. Income, Age; Presidential approval; Support for a policy, etc.) There are different kinds of variables, including: categorical, continuous, interval, ratio, independent, dependent.

Weighting

A technique used to reflect differences in the number of population units that each case represents. Typically, for surveys done in the U.S., units are adjusted to reflect the U.S. Census.

Analyzing Polls

Understanding a poll or a survey can be a challenging task. However, there are some clear steps you can take in order to simplify the process. Below you will find a guide on where to begin.

When researchers use the phrase 'analyzing polls' they can mean one of two things: computer analysis of the polls or interpretive analysis of the polling results.

Computer Analysis involves using computer software to disaggregate (or break down) the dataset and run tables that distinguish how different groups in the sample responded to the questions. Roper Center resources offer various alternatives for obtaining those tables; not all of these options require software sophistication.

Dataset Files

The most common method to obtain crosstabular results of surveys is to order a copy of the dataset from the Roper Center and run computer analysis on the study using a statistical program like SPSS , SAS, or STATA. These popular social science statistical software packages are relatively inexpensive and easy to use. They can also simplify what could be a very complicated process. Should you find you need assistance in bringing an ASCII data file into SPSS, however, directions are available.

Reports and Releases

Often survey organizations have provided the Center with basic tables that indicate how key subgroups responded to the substantive questions. This option requires contacting a member of the Center's staff who can access the paper file archive to provide you with the relevant data for a nominal fee.

Interpretive Analysis of survey data explains what is on the collective public's minds in a fair, non-biased manner. Sound analysis takes into account various measures: critical thinking, sources of error, context, methodological matters, and a hearty dose of common sense. Whether you're assessing a poll just out of the field or conducting secondary analysis of existing data, this section is aimed at promoting sensible examination of opinion polls, by offering analytical suggestions.

What's a public opinion poll?

A scientific, non-biased public opinion poll is a type of survey or inquiry designed to measure what the public's views are regarding a particular topic or series of topics. Questions are asked by trained interviewers to people chosen at random from the population being measured. Responses are given, and interpretations are made based on the results. It is important in a random sample that everyone in the population being studied has an equal chance of participating. Otherwise, the results could be biased and, therefore, not representative of the population. Representative samples are chosen in order to make generalizations about a particular population being studied.

It's important to remember that a census is not an example of a poll, because everyone in the population is included. A sample does not include everyone, Jay Leno's famous comedy bit about "Jaywalking" (where he stops someone on the street to ask a question) is not a poll because it is not scientifically representative of a population. It is, however, random.