

Frequently Asked Questions about Polls and Surveys

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1 - What elements of methodology are important in a poll or survey?

There are several critical aspects of survey methodology. The National Council of Public Polls lists in its principles of disclosure the ones that should be included in a poll or survey report. These include:

- Sponsorship of the survey – Depending on the sponsor, this could affect the types of questions asked, the sampled population, or the manner in which the data is interpreted
- Dates of interviewing – This would be critical in a time-sensitive survey, such as a response to an event or crisis, wherein the responses of people surveyed may change as time since the event gets longer. It is also particularly important in political polls before an election in order to track changes in voter preferences as the election approaches.
- Method of interview (e.g. phone, email, in-person, etc.) – This could be important if the method of contacting people excludes some portion of the population. For example, most telephone surveys use land-line phone numbers instead of cell phones. Since there is a growing number of people who use only a cell phone, those people would be excluded from that type of survey, possibly introducing an inaccuracy, or bias, in the resulting data such that it does not represent the true preferences of the whole population, only that of the portion of the population with land-line phones.
- Population that was sampled – This would include characteristics of the people surveyed that could affect how they responded (e.g. race, sex, age, religious beliefs, political party affiliation, etc.)

- Size and description of the sub-sample – In a report that discusses results from a group smaller, and usually more specific in characteristics, than the whole population, it is important to describe the characteristics of that smaller group because it may be different in important ways. For example, a survey may specifically take a random sample of only people with an annual household income of above \$100,000, placing them in a sub-sample since not all households earn this much.
- Exact wording of the questions asked and the order in which they were asked – This is very important since the phrasing of a question can be very simple, and interpreted the same way by anyone, or more complex in a way that leads to varying interpretations. Questions may even be presented in a way that tends to induce a desired response, especially if certain questions are asked after others. There is [more](#) about this element in the FAQ answer about survey questions.
- The percentages upon which the conclusions are based – This should include not only the percentages themselves, but also the margin of error, which indicates a range of outcomes based on estimated inaccuracies in the data, and whether or not the resulting numbers are “weighted.” There is more on [margin of error](#) and [weighting](#) below.

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2 - Why do the questions asked in a survey matter so much?

The questions asked and the order in which they were asked sometimes affect the way people respond. This is often true in political polls. For example, questions that ask respondents who they will vote for, usually referred to as the “horserace” question, often vary among polls, with some including the names of all the candidates, some just the candidates of the major parties, and some with no names at all. The distinction between the ways in which questions are worded can lead to dramatically different results in a survey, especially if the person answering thinks they are constrained in their available responses, confused by what the question is asking, or biased towards a certain response due to the phrasing of the question.

To illustrate some cases in which question wording can affect survey outcomes, the American Association for Public Opinion Research (AAPOR) [describes](#) some specific types of questions and how they can affect responses. Those questions types are:

- Open Ended vs. Close Ended – The difference between these two is whether choices are provided in the question or if the respondent must come up with an answer independently. Depending on how many and which specific options it provides, a close-ended question could lead to very different results. An example would be:
 - o “If you had to vote for President today, who would you vote for?” (open-ended), compared with:
 - o “If you had to vote for President today, would you vote for Candidate A, B, C or D?” (close-ended).

- Double-Negative – This usually occurs with a statement-type question in which respondents are asked to answer “agree” or “disagree” and are confused about which applies to their true feeling about the statement. An example could be something like, “I typically feel that environmental problems don’t affect me.” Here, a person may “typically feel” that way, but still be concerned about the environment in general, leaving them unsure about whether to agree or disagree. A better statement might be, “I am typically concerned about the environment.”
- Double-Barreled – In this type of question, more than one option is given, but the only answers are “yes” and “no,” so the true response is unclear. If someone asked “Do you have a dishwasher and an air conditioner in your home?” and the person’s reply was “no,” that could mean the person had neither of them or had just one and not the other. A better question would address each case separately.
- Leading – A question that preempts the actual question with a suggestive or associative phrase can lead the respondent to answer differently. Often, the leading phrase associates the issue in question with a person or organization and could lead to a bias in the person’s answer, particularly if that person or organization is controversial. An example of leading would be asking a person “Do you support white-supremacists’ First-Amendment right to hold marches?” compared with “Do you support the First-Amendment right to hold marches?”

With respect to order, certain questions asked before others can cause respondents to think differently about their responses to following questions, resulting in a bias very similar to the example of the “leading” question mentioned above. For example, a poll before the 2004 presidential election that had asked respondents a series of questions about terrorism before asking whether they would vote for Bush or Kerry could have led to a bias towards Bush if the people asked made a stronger association between terrorism and Bush’s campaign platform than with that of Kerry’s.

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3 - What constitutes a “random” sample?

Random sampling is an attempt to select a group of people that represent the entire population being surveyed. Since it is difficult to survey large populations, such as all the registered voters in a state, a poll or survey will randomly choose a much smaller group that is estimated based on probability to represent the true population.

Random samples are not always accurate and depend largely on the method used to choose the members of the sample. For a sample to be an accurate representation of the population group of interest, all people in that population must have some measurable chance of being selected. For example, some political polls use complete lists of registered voters since they are an assurance that all people the poll intends to survey are on the list, and no one is on the list more than once. An example of a poor method of

generating a random sample would be using a phone book since not all people have their number listed and therefore would not have a chance of being chosen.

Techniques for random sampling are not all the same since the population of interest may vary depending on what the survey is attempting to explore or the sampled population may be so large that a perfect random sample isn't feasible. This arises during elections with the conduct of exit polls, which use a form of sampling called "cluster sampling." There is more on [exit polls](#) below, and a more detailed description of various random sampling techniques can be found [here](#).

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4 - How important is the size of a survey's sample?

Sample size is important up to a point, but what is usually much more important is how the people in the sample were chosen, as is discussed in the section on [random sampling](#). In general, sample size matters because it directly affects the size of the [margin of error](#) in the results. What this means is that when samples are very small, the accuracy of the results are less dependable because it's harder to say with confidence that the sample truly reflects the characteristics of the population being surveyed. As samples get larger, the probability that the sample has enough people to accurately represent the surveyed population grows and the error gets smaller. There is no magic number for appropriate sample size, but most polls and surveys will use samples between 500 and 1,000 because they are small enough to be feasible and large enough that they have an acceptably small margin of error. However, while sample size does statistically improve accuracy, one still has to consider the composition of the survey and the characteristics of the people surveyed because they could also introduce error.

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5 - What does it mean when results are "weighted"?

Weighting is a method used to account for the fact that a random sample may not accurately reflect the characteristics of the true population. Based on the probability of selecting a given individual in the sample, the results of a survey are adjusted to get a better indication of how the true population's results would be expected to look.

If a survey asking questions about immigration policy were based on a sample in which 15% of the people were foreign-born, even though foreign-born people represent only 11% of the U.S. population, the results may not be representative of the true population since the responses to the survey's questions are likely influenced by a person's place of birth. To correct for this, a weight can be applied to the responses based on the 11% chance of selecting a foreign-born person for the sample, effectively reducing the contribution of each foreign-born person's response to the survey, and increasing the contribution of responses from people born in the U.S. More detail on this subject is available [here](#).

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6 - What is a longitudinal survey?

A longitudinal survey is one that tracks characteristics of a given group of people over a period of time. An example of this type of survey is the national census, which every ten years asks every person in the country questions about their income, employment, living arrangements, and many other characteristics that may change over time. Because they ask the same people the same questions repeatedly, longitudinal surveys are a useful tool for identifying trends in certain population characteristics.

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7 - What is the “margin of error” in a survey?

Nearly all well-reported surveys or polls will provide a margin of error along with the data. This number, usually expressed in the form of a range of percentage points (e.g. + or – 3 percentage points), is a means of accounting for the fact that most surveys cannot feasibly question every single member of the surveyed population and instead only ask a random sample of that population. For example, California has over 14 million registered voters, so it would be a difficult task to ask every one of them about their choice of presidential candidates and much easier to ask a randomly chosen group of 1,000.

Since a large number of people will obviously be excluded in taking such a sample, and it is difficult to randomly choose a sample that exactly matches the entire population in every way, a difference between the results from the sample and the expected result from the population will occur, usually referred to as the margin of error. As the sample gets larger, the error gets smaller based on probability, so a sample of only 100 people would have a margin of error of +/- 10 percentage points, whereas a sample of 5,000 would have a margin of error of only +/- 1 percentage point.

Margin of error can be particularly significant in political polls since the intent of the poll is usually to see which candidate has a lead in voter preference. For example, a poll may show that a candidate holds a lead of 52% over his opponent’s 48%, but if the calculated margin of error is +/-5 percentage points, his share of the respondents could range from 47% to 57% and his opponent’s from 43% to 53%, meaning the lead could potentially be anywhere from 14% for the candidate to a 6% lead for his opponent.

These error levels are based on a 95% level of confidence. For more information on [confidence levels](#), see the description below, and for a more detailed description of how a margin of error is derived, that can be found [here](#).

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8 - What is a “confidence level”?

Some surveys will list a confidence level, usually expressed as a percentage, along with the margin of error. A confidence level is simply a mathematical measure of confidence, based purely on probability, that a given sample’s results represent the true population’s value. The most commonly used confidence level is 95%, which means that 95 out of 100 surveys will be representative of the true population’s expected responses, within the survey’s margin of error. Higher confidence levels could be used, although they would have a larger margin of error in order to ensure a greater probability that the true population value falls within the range of results.

For a more specific [example](#), in a poll taken March 2-3, 2008 in Ohio, with a sample size of 600 voters expected to vote in the Ohio Democratic primary, and a margin of error of +/- 4 percentage points at the 95% confidence level, 56% of the respondents said they would vote for Hillary Clinton. This means that if you took 100 random samples of 600 voters and conducted this poll on each sample, 95 of those 100 polls would produce a result saying 52-60% of the sample would vote for Hillary Clinton, the same result you could expect if you sampled the entire population of Democratic primary voters in Ohio. To be 99% sure that any one of your 100 samples of 600 voters was statistically the same as the true population’s preferences, you’d have a margin of error of +/- 5 percentage points, so your range of people choosing Clinton would be 51-61%.

The other 5 samples would, based on probability, fall outside that range of expected values, differing enough from the expected population value as to be considered not statistically representative of the true population. To obtain a smaller range of results for the 95 samples one can be “confident” match the true population, a larger sample would be required. In this case, still using a 95% confidence level, if the poll had surveyed 5,000 prospective voters instead of just 600, the margin of error would have been reduced to +/- 1 percentage point, so one could be 95% confident that 55-57% of people would say they would vote for Hillary Clinton. However, it is obviously much quicker and more logistically feasible to use smaller samples, and a margin of error of 3 percentage points is usually small enough.

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9 - When can one candidate be considered to have a lead in a poll?

While it would seem simple enough, there’s more to determining whether or not one candidate has a lead over another than just looking at the poll’s results to see who has the higher number. Since polls nearly always rely on a random sample and not the entire voting population, the results are based on statistical probability and they have error, so deciding whether or not a lead exists requires a comparison of the gap between them with the [margin of error](#) in the poll. The larger the difference between the size of the gap and the margin of error, the better chances that one candidate has a lead. As an example, if Candidate A had 58% of respondents in a poll and Candidate B had 52%, with a margin of error of +/- 4 percentage points at the 95% [confidence level](#), Candidate A would probably be credited with merely having an advantage or edge over Candidate B because

even though A's number is higher, applying the margin of error most conservatively would mean A had 54% and B had 56%, so there's still some small chance that they're tied or that B is slightly ahead. If the results showed Candidate A with 60% and Candidate B with 51%, a gap of a little more than twice the margin of error, one could say with confidence that Candidate A had a lead over Candidate B. This description comes from the National Council on Public Polls (NCPP), and more information can be found [here](#).

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10 - Why make a distinction between “percentage” and “percentage points?”

It may seem like a matter of semantics, but there is actually a big difference between these two concepts. In polls and surveys this arises with issues like [margin of error](#). Stating that margin of error is +/- 4% would be much different than +/- 4 percentage points. If the margin of error were +/- 4% for a sample of 600 people in which 50% said they'd vote for Candidate A, that means that the range of people choosing Candidate A ranges from +/- 4% of 300, so from 288 to 312, or 48-52% of the whole 600. If it is +/- 4 percentage *points*, the error is applied directly to the sample result, meaning the range is 46-54%.

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11 - Why do survey results sometimes have a “missing/don't know” response even in a simple poll?

Survey results will almost always have missing data, even in a simple opinion poll in which respondents can only choose from a few options, and those non-responses are often listed as “missing” or “don't know.” That is because the people conducting the survey can't tell why a person didn't respond to a question, only that there was no response. It may have been a simple mistake, failure to understand the question, or a conscious refusal to answer. Usually this is a small percentage of the responses, but if it is large enough, it may be an indicator of a survey that is poorly worded, poorly formatted, contentious in nature, or has some other characteristic that would lead people not to respond. It may also reveal characteristics of the people sampled.

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12 - How important are response rates in a survey?

The results of polls and surveys will often include a response rate with the data, an indication as to how many people the survey attempted to contact actually provided an answer. Concern can arise when enough people being surveyed don't respond (i.e.,

nonresponse), especially when it occurs within certain classes or subgroups of people. For example, if a poll were conducted on a random sample of all registered voters in a given state and the results showed that Democrats responded more often than Republicans, the data may not be reflective of true population preferences. In this case, the pattern of nonresponse is relatively simple and statisticians can adjust the results to reflect true proportions using tools such as weighting. However, it can occur that nonresponses will occur across classes of respondents, making the identification and correction of bias much more complicated. Additionally, the true effect of response rates on survey results has not been firmly established and can vary depending on the survey, so the necessary level of response for an acceptably accurate survey is not an agreed upon number and varies between 50% and 85%. [ABC News](#) provides answers to many technical questions associated with response rates and the [AAPOR](#) provides a specific definition of response rate and standardized methods for measuring it.

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13 - How do exit polls work and why can the results vary?

Exit polls are simply polls conducted on voters as they “exit” their polling place on voting day, hence their name. In national elections, exit polls provide an almost instantaneous means of gauging the results of the election by asking people who they voted for and sending the results to major media outlets, so the numbers obtained in these polls are the ones that would be used on television to predict outcomes. For U.S. presidential primaries and the general election in the fall, including those for state governors and members of congress, these polls are conducted by a private research firm and the data is provided to what is known as the National Election Pool (NEP), consisting of ABC, CBS, NBC, CNN, Fox, and the Associated Press. The NEP [website](#) includes information on its methodology and sampling error.

It is not uncommon that the results of exit polls will vary from the actual results of the election and there are several reasons for this, some having to do with the methodology of the polls, and some with the respondents themselves. These include:

- Method of sampling – Exit polls use a method of sampling known as “cluster sampling,” which is not as inclusive as simple [random sampling](#). Since it would be logistically unrealistic to place a pollster at the more than 200,000 polling places in the country, the NEP instead randomly selects voting precincts within a state, then randomly questions voters leaving polling places within those precincts. Because not all clusters (or voting precincts in this case) are the same as each other or the whole population in terms of voter characteristics, this increases the [margin of error](#) by a significant amount, estimated at anywhere from 30% to 80% more than simple random sampling.
- Confidence level – Like any measurement based on statistics, exit polls use a [confidence level](#) that determines the margin of error and the certainty with which a prediction can be made. Since a 95% confidence level involves a one in twenty chance of being outside the margin of error, it is conceivable that enough uncertainty could be introduced as to make the wrong call. In a very

close race, this matters greatly, so the NEP uses a 99.5% confidence level for the national election.

- Voter behavior – This is the greatest uncertainty in exit polling and has much more unpredictable and sometimes dramatic effects on the predictions. Voters may refuse to be interviewed or may lie about their vote, both of which would introduce a bias in the results. A recent example of major inaccuracy in exit polls being attributed to voter behavior was the 2004 presidential election, in which exit polls repeatedly overestimated the vote for John Kerry. The research firms that conducted the polls attributed this variation mostly to Republican voters more often refusing to be interviewed than Democrats, inflating Kerry's numbers. Additional reasons given were less direct access to polling places in some precincts, poor weather conditions which may have reduced voter cooperation, and a higher percentage of young people working as interviewers.

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14 - What is a “push poll?”

A push poll is a type of poll, usually regarded as illegitimate and non-scientific in its methods, specifically designed to produce results that will persuade voters and affect the outcome of an election. Push polls use tactics such as one-sided questioning that addresses only one candidate, asking questions about one specific issue, and portraying an issue or candidate in a strongly negative or positive light. The American Association for Public Opinion Research considers such polls a violation of its Code of Professional Ethics and Practices and provides more detail on its [website](#).

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15 - Are “leaked” polls valid?

Often in the few weeks before an election, representatives of a campaign will release results of “internal polling” showing that their candidate is ahead or gaining ground on their opponent. Naturally, questions arise as to the validity of such a poll and the answers to such questions are essentially based on the same principles guiding the validity of any other poll. Mark Blumenthal, editor of pollster.com, provides three principles for assessing the validity of a leaked poll, described in detail on the [website](#) of AAPOR. Those principles are, in short: 1) the pollster that conducted the survey has gone “on the record” and provided details about the actual results 2) the pollster disclosed the basic elements of the survey's methodology that are included in the National Council of Public Polls' (NCPP) [principles of disclosure](#) 3) the pollster released information that goes beyond the NCPP's standards. This final one isn't absolutely necessary, but would provide more confidence in validity. Also, if the pollster refused to disclose any elements, that could be cause for suspicion.

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Sources and Further Reading:

General Information

The American Association for Public Opinion Research – Polls and Surveys FAQ (<http://www.aapor.org/poll/>) – A good place to start for information on polls and surveys.

Zukin, Cliff. “Sources of Variation in Published Election Polling: A Primer.” Rutgers University, October 2004. (http://www.aapor.org/uploads/zukin_election_primer.pdf) – Another good resource on a variety of polling and survey topics.

Newport, Frank, Lydia Saad and David Moore. “How Are Polls Conducted?” Where America Stands, John Wiley and Sons, Inc., 1997. (<http://media.gallup.com/PDF/FAQ/HowArePolls.pdf>) - Provided by Gallup as an explanation of its polling methods

Gawiser, Sheldon R. and G. Evans Witt. “20 Questions a Journalist Should Ask About Poll Results.” National Council on Public Polls. (<http://www.ncpp.org/?q=node/4>) – Answers to more commonly asked questions about polls and surveys.

Pollster.com (<http://www.pollster.com/>) – provides up to date poll results and links to resources about methodology

American Research Group, Inc. (<http://americanresearchgroup.com/>) – Data from presidential pre-primary election polls

Exit Polls

Edison Media Research and Mitofsky International. “Exit Polls.” (<http://www.exit-poll.net/>) – Information about the National Election Pool and how it gets its data

“Mystery Pollster: Demystifying the Science and Art of Political Polling.” By Mark Blumenthal. (http://www.mysterypollster.com/main/2004/12/what_is_the_sam.html) – Various information about polling, focusing on exit polls

Morin, Richard and Claudia Deane. “Report Acknowledges Inaccuracies in 2004 Exit Polls.” *The Washington Post*. January 20, 2005. (<http://www.washingtonpost.com/wp-dyn/articles/A22188-2005Jan19.html>) – Example of error in exit polls

Response Rates

The American Association for Public Opinion Research. 2006. *Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys*. 4th edition. Lenexa, Kansas: AAPOR. (http://www.aapor.org/uploads/standarddefs_4.pdf) – Detailed information on how response rates for surveys are determined

Groves, Robert M. “Nonresponse Rates and Nonresponse Bias in Household Surveys.” *Public Opinion Quarterly*, Vol. 70, Number 5, 2006. (<http://poq.oxfordjournals.org/cgi/content/full/70/5/646>) – Detailed description of relationship between survey response rates and bias in survey results

Langer, Gary. “About Response Rates: Some Unresolved Questions.” *Public Perspective*. May/June 2003. (<http://abcnews.go.com/images/pdf/responserates.pdf>). – Answers to many technical questions about response rates.