

I. Sampling

A. Theory

Terms

- a. that set of individuals about which we want to gather information
 - b. a total enumeration of the whole population
 - c. the subset of population selected for data gathering and analysis
 - d. one that accurately mirrors the population on all variables studied
 - e. each unit of population has an equal chance of selection
 - f. each unit of the population has a knowable chance of selection
 - g. the *probability* that the population value we are trying to estimate (e.g., the percentage of the vote than one candidate will win in an election) falls within a specified range of values (called the sampling-error margin) on either side of the observed sample value (e.g., the % of the vote the candidate received among those polled)
- (1) Most social science polls set that *confidence* level at 95%; i.e., if 100 samples were independently drawn from the population, the population value will fall within a specific random-sampling error margin on either side of the observed sample value
 - (2) Or, to say the same thing another way, the *risk* that the observed sample value will fall beyond a specified error margin is less than 5 times out of 100 or 1 out of 20.
- b. Sampling-error margin: the specified range that the population value will fall within on either side of the observed sample value (at a specified confidence level)

- 2. Relationships between variables in a simple-random sample: Table 2.1, p. 29

Population size is of little consequence above 1,000; i.e., the sample size needed to limit the random-sampling error to $\pm 3\%$ is 1067 respondents regardless of whether the population is the UNCW freshman class, the voters in the city of Wilmington, the state of N.C., or the whole U.S.

$$\sqrt{\text{sample size}} = \frac{(\text{population variability} [\text{probability}]) (\text{confidence level} [z \text{ score}])}{\pm (\text{error margin} [\text{probability}])}$$

$$\sqrt{\text{sample size}} = \frac{(0.5)(1.96)}{\pm (0.03)} = 1067$$

$$\sqrt{\text{sample size}} = \frac{(0.5)(1.96)}{\pm (0.04)} = 600$$

For multi-stage cluster samples, add 1% to each of these error margins

$$\sqrt{\text{sample size}} = \frac{(0.5)(1.96)}{\pm (0.05)} = 384$$

B. Applied sampling and surveys of public opinion (1936 to 1948)

- 1. Non-representative sampling (convenience and non-random samples)
 - a. *Literary Digest* pre-election poll of 1936
 - (1) Unrepresentativeness of population lists
 - (2) Termination of polling in early September
 - (3) Self-selection bias toward higher classes in mail-in balloting
 - b. Gallup pre-election poll of 1948
 - (1) Lack of supervision of (middle-class female) interviewers at the last stages of sampling (when they filled their neighborhood and respondent-selection quotas) led to under-representation of poor, working-class, and minority voters
 - (2) Weighting of sample subsets to make up for under-representation
 - (3) Termination of polling two weeks before the election

C. Contemporary (post-1948) sampling methods

- 1. Simple-random sampling (SRS): seldom used – except in exit polls; because there is usually no master list and/or the population is too geographically scattered
- 2. Multistage-cluster sampling (face-to-face interviews) slightly higher sampling-error margin
 - a. Division of the population into regions (for nationwide samples, usually 4)
 - b. Random selection
 - (1) By PSU within region 80 across all 4 regions
 - (2) By block within PSU 20
 - (3) One household within block 20 x 80 = 1600
 - (4) One individual within household
 - (a) NES & GSS & most European pollers use use a stringent quota method
 - (b) Media polls often use the youngest- or next-birthday selection method
- 3. RDD (telephone interviews)
 - a. Population: non-institutional residential numbers (listed, unlisted, and new-since-last-listing)
 - b. Sampling methods
 - (1) Households
 - (a) Randomly drawn *seed* numbers proportional to area code, exchange, and cluster
 - (b) Plus-one or Sudman method to randomize the phone numbers used
 - (2) Individuals within households – typically the youngest- or next-birthday method

- c. Nonresponse rates are now approaching 60% of working numbers called
 - (1) Causes – answering-machine screening (1/3), refusals (1/3), not-at-homes
 - (2) Significance depends on whether those not included have different opinions/behaviors than those interviewed

- II. Non-sampling error in scientific polls pp. 34-39
- A. Interviewer effects – gender, age, race, SES, accent
 - B. Response-acquiescence (question-topic) effects
 - 1. Definition: a socially-desirable opinion is given instead of true attitude
 - 2. Examples http://www.publicagenda.org/issues/red_flags.cfm?issue_type=education
 - a. Q topic is too abstract or obscure → a random opinion is given rather than no opinion
 - b. Q topic is too sensitive → a presumed-acceptable opinion is given rather than real attitude
 - C. Question-wording effects
 - 1. Multiple stimuli
 - a. Definition: multidimensional issues lumped into 1 Q produce ambiguity about which dimension is more significant
 - b. Examples
 - (1) Support for free speech for Communists
 - (2) Support for affirmative action and Congress
 - (3) School voucher programs: parental choice versus taxpayer funds
 - (4) Abortion: total ban/medical only/social-economic/morning-after pill/unlimited access
 - 2. Unbalanced choice
 - a. Definition: Q gives only one side or doesn't examine the consequences (e.g. spending & taxes)
 - b. Examples
 - (1) Polar alternatives are better than yes/no to a single choice: "Do you favor or oppose the death penalty?" is better than "Do you favor the death penalty?"
 - (2) Balanced choices are better than Likert scales: "Some people feel that ...; others feel that ..." is better wording than asking how much the respondent agrees or disagrees with one choice
 - 3. No middle position
 - a. Definition only polar alternatives or balanced choice alternatives given
 - b. Examples
 - (1) No middle position on a scale: e.g., many political ideology scales
 - (2) No "depends" option(s):
 - D. Question-order effects
 - 1. Framing effects
 - a. Definition: previous questions can influence responses to later questions
 - b. Examples
 - (1) US-reporters-in-Russia question before Communist-reporters-in-US question
 - (2) Political-issue questions before presidential popularity questions
 - (3) Vote-choice questions late in polls tend to lower incumbents' vote choice
 - 2. Filter or branching questions
 - a. Definition: preceding Q's used to narrow sample
 - b. Examples
 - (1) Issue-interest questions before issue-preference questions
 - (2) Age, voter-registration, campaign-interest, and past-voting-behavior questions before vote-intention questions
 - E. Non-response effects – to interview or to only selected questions
 - F. Timing-of-data-collection effects

- III. The misuse of surveys
 - A. Modern straw polls – convenience samples over-represent attentive publics
 - 1. Tallies of letters/calls to public officials – e.g., Ann Landers & not having children
 - 2. Mass-sample, mail-return surveys – e.g., Sherrie Hite sex surveys on adultery
 - 3. 800/900 number "call-in" polls to media or internet sites
 - B. Push polls – loaded questions intended to change rather than to measure opinion (p. 41)

- IV. Interpreting scientific surveys
 - A. Preelection surveys
 - 1. Recent performance Figure 2-1, p. 43 & update at <http://crystal.polsci.uh.edu/apo/APO%20update1.htm>
 - 2. House-effect variations
 - a. Timing of last scheduled poll
 - b. Wording of candidate-choice question(s)
 - c. Allocating undecided respondents
 - d. Weighing non-response rates
 - e. Screening for likely voters – tougher screens tend to give more accurate estimates
 - B. Exit polls VNS - (ABC, CBS, NBC, Fox, CNN, AP)
 - 1. Definition: election-day polls of voters exiting precinct places
 - 2. Problems
 - a. Selecting representative precincts within districts
 - b. Estimating the effects of social desirability
 - c. Weighing refusal rates
 - d. Measuring the effects of releasing exit-poll results on those who have not yet voted