

Weekly Homework I
Survey Methodology I
Due date: **December 14, 2022**

1. A recent newspaper article reported that “sales of hand-held digital devices (e.g., tablets) are up by nearly 10% in the last quarter, while sales of laptops and desktop PCs have remained stagnant.” This report was based on the results of an online survey in which 9.8% of the more than 126,000 respondents said that they had “purchased a hand-held digital device between January 1 and April 30 of this year.”

Emails soliciting participation in this survey were sent to individuals using an email address frame from the 5 largest commercial Internet Service Providers (ISP) in the U.S. Data collection took place over 6 weeks beginning May 1, 2012. The overall response rate achieved in this survey was 13 percent.

Assume that the authors of this study wanted to infer something about the expected purchases of U.S. adults (18 years old +).

- a. What is the target population? What is the population in the sample frame?
 - b. Briefly discuss how the design of this survey might affect the following sources of error (2 – 4 sentences each).
 - Coverage error (specify the type of coverage error you are concerned with)
 - Nonresponse error
 - Measurement error
 - c. Without changing the duration or the mode of this survey (i.e., computer-assisted, self-administration), what could be done to reduce the errors you outlined in 1b? For each source of error, suggest one change that could be made to reduce this error component, making sure to justify your answer based on readings and lecture material (1– 2 sentences each).
 - d. To lower the cost of this survey in the future, researchers are considering cutting the sample in half, using an email address frame from only the 2 largest ISPs. What effect (if any) will these changes have on sampling error and coverage error (1 – 3 sentences each)?
2. For each of the following design decisions, identify which error source might be affected. Each design decision can affect at least two different error sources. Write short (2-4 sentences) answers to each point.
 - a) The decision to use repeated calls persuading reluctant respondents in a customer satisfaction survey for a household product manufacturer.
 - b) The decision to increase the number of questions about assets and income in a survey of income dynamics, resulting in a lengthening of the interview.
 - c) The decision to include prisons and hospitals in the sampling frame for a study of consumer expenditures.
 - d) The decision to change from a face-to-face interview design to a mailed questionnaire mode in a household survey of illegal drug usage.
 3. Five years after the last census, you mount a household survey using a telephone number frame. If a selected telephone number is a household number, interviewers ask to speak to the person most knowledgeable about the health of the household members. After the survey is over, someone suggests evaluating your survey by comparing the demographic distributions (i.e., age, sex, race/ethnicity gender) of your “most knowledgeable” health informant to the demographic distributions of adults from the last census. Comment on the wisdom of this suggestion.