

## Business Research Methods Homework 1

1.5) In example 1, weight is not a good measure of the participation of households in different neighborhoods in a city recycling program. What variables would you measure in its place?

1.10) For each of the following sampling situations identify the population as exactly as possible. That is, say what kind of individuals the population consists of and say exactly which individuals fall in the population. If the information given is not sufficient, complete the description of the population in a reasonable way.

a) A sociologist is interested in determining the extent to which teens are self-motivated. She selects a sample of four high schools in a large city and interviews all tenth-grades in each of the schools.

b) The lecturer in a large introductory mathematics course is concerned about the accuracy with which multiple-choice tests are graded by her teaching assistants. After the most recent test, she selects a sample of the exams and regrades them.

c) The host of a local radio talk show wonders if people who are actively religious than those who are not. The station receives calls from 48 listeners who voice their opinions.

1.17) What is the best way to answer each of the questions below: an experiment, a sample survey, or an observational study that is not a sample survey? Explain your choices.

a) Is your school's football team called for fewer penalties in home games than in away games?

b) Do college students perform better on exams when Mozart is playing softly in the background than when no music is playing?

c) Are college students satisfied with the quality of education they are receiving?

1.18) Give an example of a question about college students, their behavior, or their opinions that would be best answered by

a) a sample survey.

b) an observational study that is not a sample survey.

c) an experiment.

2.7) Your college wants to gather student opinion about parking for students on campus. It isn't practical to contact all students.

a) Give an example of a way to choose a sample of students that is poor practice because it depends on voluntary response.

b) Give an example of a bad way to choose a sample that doesn't use voluntary response.

2.12) You want to choose an SRS of 20 of a city's 480 voting precincts for special voting-fraud surveillance on election day.

a) Explain clearly how you would label the 480 precincts. How many digits make up each of your labels? What is the greatest number of precincts you could label using this number of digits?

b) Use Table A to choose the SRS, and list the labels of the precincts you selected. Enter Table A at line 107.

3.4) Each boldface number in the next paragraph is the value of either a parameter or a statistic. In each case, state which it is.

A carload lot of ball bearings has an average diameter of **2.503** centimeters(cm). This is within the specifications for acceptance of the lot by purchaser. The inspector happens to inspect 100 bearings from the lot with an average diameter of **2.515** cm. This is outside the specified limits, so the lot is mistakenly rejected.

3.7) need the book

3.10) Explain in your own words the advantages of bigger random samples in a sample survey.

3.26) A Harris Poll conducted in October 2006 reports that 42% of a sample of 2010 adults said they are not "absolutely certain" there is God. Only 29% said they believe that God controls what happens on earth.

a) Use the quick method to estimate the margin of error for a sample of this size.

b) Make a confidence statement about the percent of all adults who believe there is a God.

4.4) Which of the following are sources of sampling error which are sources of nonsampling error? Explain your answers.

a) The subject liesw about past drug use.

b) A typing error is made in recording the data.

c) Data are gathered by asking people to got to a Web site and answer questions online.

4.10) You are writing an opinion poll question about a proposed amendment to the Constitution. You can ask if people are in favor of "changing the Constitution" or "adding to the Constitution" by approving the amendment. One of these choices of wording will produce a much higher percent in favor. Which one? Why?

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4.30) You want to investigate the attitudes of students at your school toward the school's policy of an extra fees for lab courses. You have a grant that will pay the costs of contacting about 500 students.

a) Specify the exact population for your study. For example, will you include part-time students?

b) Describe you sample design. For example, will you use a stratified sample with student majors as strata?

c) Briefly discuss the practical difficulties that you anticipate. For example, how will you contact the students in you sample?